HE CANADIAN NURSE

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MONTREAL

Highlight for
MAY 1957

NURSES IN
CIVIL DEFENCE

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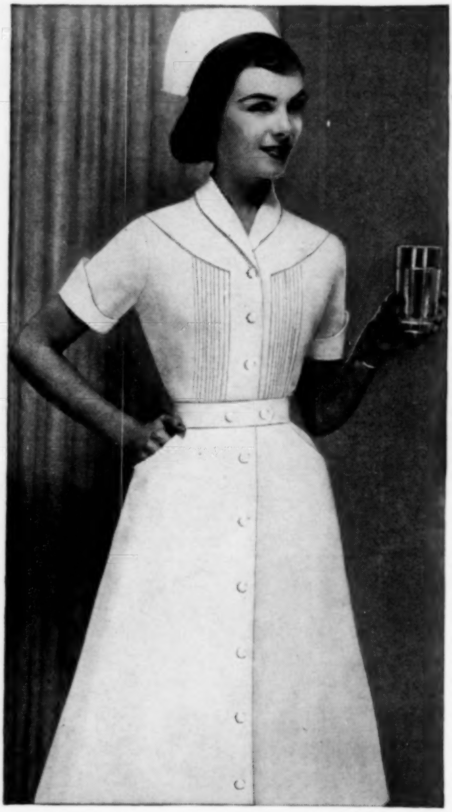

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THE CANADIAN NURSE

L'Infirmière canadienne

VOLUME 53 **NUMBER 5**

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The views expressed in the various articles are the views of the authors and do not necessarily represent the policy or views of The Canadian Nurse *nor of the Canadian Nurses' Association.*

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Between Ourselves

Promised for many months, here at last is the issue that is devoted exclusively to papers covering the manifold aspects of Civil Defence.

Perhaps you are one of the hundreds of nurses who has already had some fairly intensive instruction in the nurse's role in the event of war coming to our own land. For you, this issue will provide a concentrated source of refresher information which will serve as a ready reference.

Perhaps you are one of the more casual souls who believes — or hopes the feeling you have is actually belief — that our cities are not really in any danger from atomic attack and who, therefore, thinks this absorption in civil defence is just so much tommyrot. Heaven grant you are right — but who knows?

Look at it this way. There is an area near the eastern end of the island of Montreal where there is a very large collection of oil refinery installations. A few weeks ago, a fire broke out in one of the refineries. Fortunately, it was brought under control before it had had a chance to spread to more than a couple of the smaller tanks. But, supposing it had escaped from such control! Can you visualize the death and destruction that could easily have resulted?

Instead of thinking in terms of Civil *Defence*, supposing you read these articles as being pertinent to Civil *Disaster*. Every factor described by the several doctor and nurse authors, with the exception of the effects of radiation will then become pertinent to the situation. For though there was no catastrophe in the threat of fire noted above, we have had some very serious disasters in Canada in the past 50 years.

During World War II hundreds, thousands of nurses demonstrated their eagerness to be a part of the program of healing and rehabilitation that was provided for our soldiers, sailors and airmen. After she enlisted there was time for every one of those nursing sisters to be put through special preparatory courses. Not one was dashed off immediately to battlefield service.

If disaster strikes, there will be no time to indoctrinate nursing staffs. There will be an urgency, an immediacy that will not permit delay while nurses are taught how to handle mass casualties, how to provide the kind of leadership that a stunned, fear-shaken public requires, how to rise above her own feelings of inadequacy and give the kind of care she alone has been trained to give.

That is why we welcome the opportunity to put a manual of information and procedure into the hands of thousands of nurses in all parts of Canada. We are grateful to the Canadian Medical Association for the permission so willingly given to reprint many of the articles that appeared in their *Journal* in March 1957. We are grateful to Dr. Charron, Director of Health Services, Department of National Health and Welfare, for the wonderful support and assistance received from his department. Especially, we are most grateful to Miss Evelyn Pepper without whose genius for planning and arranging, this issue would not have materialized.

* * *

Ever since the Official Directory became an integral part of *The Canadian Nurse*, the June issue each year has included it. This year we are trying an experiment — we will be publishing the Official Directory in our July issue. This change has been made in the hope that more of the associations that advertise there will have sent us the revised list of officers and committee chairmen following the elections.

This notice rightly belonged in our April issue since the deadline for such changes is May 20. Because of the delayed notice, we will make that deadline a bit elastic this year. Corrections received any time up to May 31 will be included in the July listing. Please hustle your revised list to the *Journal* office immediately if you have not sent it earlier.

Some advice given to religious nurses of the fourteenth century:

Brother, if you are in ecstasy, exalted like St. Peter and St. Paul, or whatever example you wish to take, and you hear that the sick are in need of warm soup or any other assistance, I here give you counsel: leave your meditation immediately and come down to earth and warm the soup . . .

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THE CANADIAN NURSE
L'Infirmière canadienne

A MONTHLY JOURNAL FOR THE NURSES OF CANADA
PUBLISHED BY THE CANADIAN NURSES' ASSOCIATION

VOLUME 53 NUMBER 5

MONTREAL, MAY, 1957

No Substitute for Knowing

EVERY NURSE REALIZES that in any type of disaster, whether few or many persons are involved, there is no substitute for knowing what to do, when to do it and how to do it effectively. Providing this information is precisely what we are attempting to do for all nurses in Canada through our Civil Defence Health Services nurse education program. Individual participation in Civil Defence planning and implementation must be a part of the professional nurse's role in her work, her community and in the democratic society of which she is an integral part. This realization has led to a broad acceptance of Civil Defence nursing in the basic curricula of most hospital and university schools of nursing in Canada. The teaching of Civil Defence nursing is now established where it rightfully belongs — in the realm of the student's interest, learning, experience and professional development.

In order, therefore, to familiarize directors of nursing education and senior instructors, responsible for these nurse education programs, with Civil Defence Health Services planning, and to present technical information on the treatment and care of specific types of casualties, special courses have been conducted at the Canadian Civil Defence College at Arnprior, Ontario. Since 1955 four five-day courses have been held with a total enrolment of 267 nurse educators. Through them, we believe, proper interpretation of Civil Defence nursing to student

JOAN FLOWERS, EVELYN PEPPER, SALLY TROTTER AND SISTER MARIE CELINA, SUPERIOR, confer on the *demonstration at St. Paul's.*

nurses, postgraduate nurses and graduate nurse staffs is ensured. It is the responsibility of Civil Defence Health Services to keep these instructors supplied with up-to-date teaching material and references through their respective provincial Civil Defence authorities. They must also be notified of any significant changes which might affect professional nurse functions, training and action.

Similarly, other nursing groups are being informed. Last fall, 60 nurse specialists including public health nursing administrators and teachers, occupational health nursing consultants, as well as the national directors and provincial supervisors of the Victorian Order of Nurses, the St. John Ambulance Association and the Canadian Red Cross Society attended a course at the College. Following three days of detailed interpretation of Civil Defence planning, development and problems of professional nurse interest, these nurses assisted in defining the Civil Defence responsibilities of the nurse who gives leadership in community health. Due to the conscientious acceptance of their task, a basis has been provided upon which courses will be developed in specifically-named nursing fields. It is anticipated that the first of these courses will be held this fall at the Canadian Civil Defence College.

In the development of hospital disaster planning, directors of nursing service also have received considerable guidance. Hospital Disaster institutes, seven of which were held regionally across Canada, proved to be very helpful instructional media. At these sessions, hospital administrators, chiefs of medical staffs and directors of nursing service, representing 250 hospitals, discussed their combined and individual responsibilities in establishing practical, concise and workable disaster plans for their respective hospitals. The hospitals represented at these institutes contain approximately two-thirds of the active hospital beds in Canada.

A second phase of hospital disaster planning is presently being developed. This is hospital evacuation and reestablishment in improvised units away from the original site. Studies are being made now of the problems involved in hospital evacuation. The most recent of these was a time-motion study of the evacuation, on a given day, of approximately one-fifth of the hospital patient-load of St. Paul's Hospital, Vancouver. Simulated patients were used to represent a cross section of the hospital's patient-care services. The information gained through this particular study, known as "Operation Dogwood," will be of inestimable value to Canadian hospitals in determining techniques of evacuation.

Civil Defence Health Services appreciate the extension of Civil Defence nursing instruction being accomplished by the provincial Civil Defence nursing consultants and the Civil Defence nursing committees of the provincial nurses' associations. Though them the essential aspects of Civil Defence nursing are being relayed, not only to the nurses already mentioned, but also to the private nurse, the nurse in the doctor's office and the retired or married nurse in her home. We appreciate, too, their close liaison with the St. John Ambulance Association and the Canadian Red Cross Society, the two agencies which, through their nurse members, are continually preparing increasing numbers of women and men for emergency service.

Our goal is to reach and engage the interest of the individual nurse in Civil Defence community planning to increase her knowledge of disaster nursing; to encourage her to assess herself and determine how she could serve best in an emergency situation; and to give her confidence through knowledge so that she may bring help and reassurance to injured persons and others. This is our goal because we believe that in a disaster situation there is "no substitute for knowing."

To the Editorial Board of *The Canadian Nurse* which has continuously assisted us by bringing Civil Defence information to its professional readers, Civil Defence Health Services is most grateful.

EVELYN A. PEPPER
Nursing Consultant
Civil Defence Health Services

"You will find us rough, Sir, but you'll find us ready" — DICKENS

A New Look at Civil Defence Health Services

K. C. CHARRON, M.D.

THE TERRIFIC DESTRUCTIVE power of large atomic weapons with the associated hazard of radioactive fall-out created new and expanded problems for civil defence. The principal change in planning brought about by this development was the acceptance of a policy of evacuation for cities considered to be potential enemy targets. Thirteen such cities have been named in Canada, with an aggregate population of over 5,800,000 people.

The rapid movement of populations of this magnitude and their reception into smaller communities is the major challenge which has to be faced by civil defence planners in Canada at the present time. Some have argued that it "can't be done." Fortunately those who have studied the different local situations consider that it is possible. Careful planning in advance is essential and the Canadian people must know "*what to do and when to do it.*"

OPERATIONAL PLANNING

Operational planning for civil defence can be divided into four phases:

Phase A — Pre-attack evacuation of pre-selected large cities. This is the thinning out of populations by evacuating priority groups during a period of strategic warning.

Phase B — Planned withdrawal from pre-selected cities, to be put into operation on the alert signal.

Phase C — Action after the incident occurs, to be put into operation in any area where an attack takes place.

Phase D — Aid and rehabilitation, which will include both disaster cities and reception areas.

It will be noted that the war evacuation of Canadian cities has been divided into two phases, the first (Phase A) being a thinning out of population by the evacuation of priority classes from pre-selected cities, and the second (Phase B) being the planned withdrawal of the remainder of the population from these cities. Both phases will have to be accomplished rapidly and it is possible that a situation might arise in which the two phases would become a single operation.

Priority classes will include: (a) Young children and school children accompanied by mothers or other responsible persons. Teachers should also be evacuated to reception areas to augment school facilities for children of school age in the reception communities. (b) Expectant mothers. (c) The aged. (d) Adult disabled and ill in hospital and confined to home. These priority classes represent at least 40% of the population in the pre-selected cities and include groups of people of particular concern to Civil Defence Health Services.

The remainder of this article will focus attention on health services problems and indicate progress to date. However, it should be emphasized that *health services represent only one of several civil defence services. Over-all coordination is essential and civil defence must also dovetail its plans with those of the Armed Services. A close working relationship with the United States is also important.*

PROBLEMS OF EVACUATION

The rapid mass evacuation of populations will create major problems and many of these are of particular concern to civil defence health services. Fig. 1 illustrates the situation and lists problem areas under two headings: people and essential health facilities.

People: The maintenance of a reasonable standard of health in the general population will present a challenge to health workers, and success or failure could have an important bearing on the war effort. The sick and injured will have to be cared for and the evacuation of the critically ill will be most

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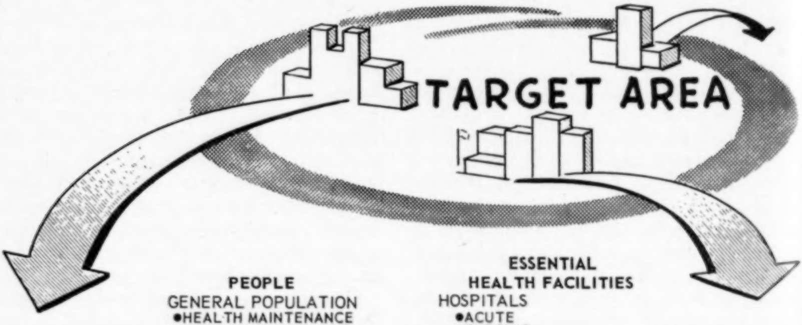
Dr. Charron is Director of Health Services, Department of National Health and Welfare, Ottawa. Reprinted with permission, from the *Canadian Medical Association Journal*, March, 1957.

**EVACUATION PROBLEMS
OF PARTICULAR CONCERN TO C.D. HEALTH SERVICES**



PEOPLE

- GENERAL POPULATION
  - HEALTH MAINTENANCE
- SICK & INJURED
  - IN HOSPITAL
  - AT HOME
- HEALTH MANPOWER
  - PHYSICIANS
  - NURSES
  - DENTISTS
  - PHARMACISTS
  - ETC.

**ESSENTIAL
HEALTH FACILITIES**

- HOSPITALS
  - ACUTE
  - CHRONIC
  - SPECIAL
- LABORATORIES
  - MEDICAL
  - PUBLIC HEALTH
- MEDICAL SUPPLY SOURCES
- OTHER HEALTH FACILITIES
  - BLOOD DEPOTS
  - TEACHING RESOURCES
  - CLINICAL & DIAGNOSTIC CENTRES
  - RESEARCH FACILITIES
  - ETC.

Fig. 1

difficult. It must be remembered that many bedridden cases will be found at home, and lack of attention for this group could create chaos. Health manpower will be at a premium and must be deployed to provide an equitable distribution of personnel to Civil Defence and the Armed Services and for other civilian requirements.

Essential Health Facilities: The evacuation of our large cities will mean the loss, at least temporarily, of many of our most important health resources. About 50% of the hospital beds in Canada, excluding those for mental disease and tuberculosis, are situated in these cities and new units will have to be established in reception areas. In addition, hospitals may be required for mass casualties. Medical and public health laboratories will need to be re-located, and blood depots, in most circumstances, are in vulnerable areas. Teaching resources will be important to the war effort, and other health facilities such as clinical and diagnostic centres and research facilities will all have to be considered as part of the survival plan.

SCOPE OF HEALTH SERVICES

Before discussing the new look for civil defence health services, it is important to appreciate the broad scope covered by these services. Fig. 2 indicates that health services can be divided into four major segments, namely medical services, public health, special weapons and medical supplies.

Medical Services: These include arrangements for non-casualty care as well as for casualties. Hospitals will be required for both, and emergency blood services will provide blood and blood products for those with the greatest need.

Public Health: This service will be concerned with the maintenance and restoration of public health. Communicable disease must be controlled. Sanitary supervision will be essential and will include the provision of a safe and adequate water supply. Public health and clinical laboratory facilities will be required. Mental health will be important, both as regards prevention of individual and group disturbances and as regards clinical arrangements for those requiring treatment. The dispersal of toxic materials in industry will present another problem, and industrial medical services will form an important part of the health services organization. Mortuary arrange-

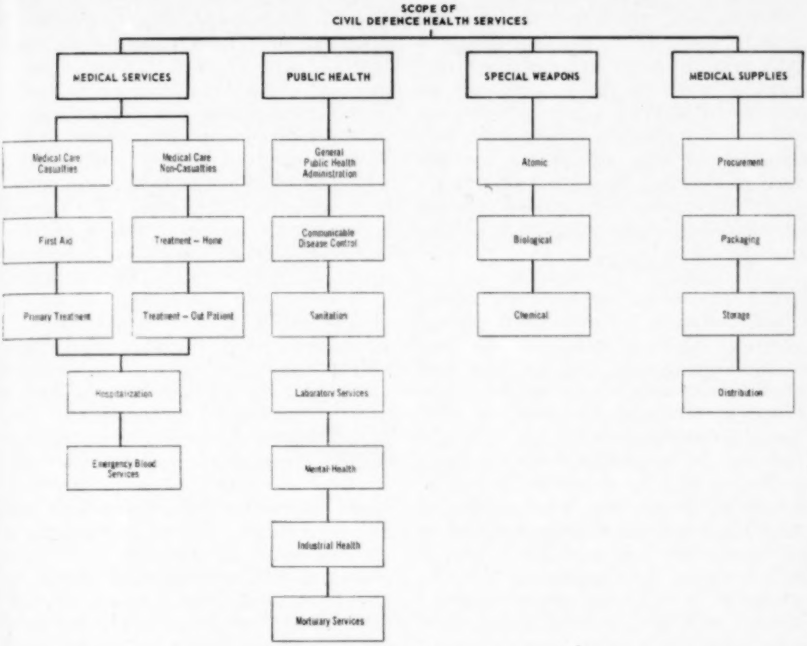

SCOPE OF
CIVIL DEFENCE HEALTH SERVICES
MEDICAL SERVICES
PUBLIC HEALTH
SPECIAL WEAPONS
MEDICAL SUPPLIES
Medical Care Casualties
Medical Care Non-Casualties
First Aid
Treatment – Home
Primary Treatment
Treatment – Out Patient
Hospitalization
Emergency Blood Services
General Public Health Administration
Communicable Disease Control
Sanitation
Laboratory Services
Mental Health
Industrial Health
Mortuary Services
Atomic
Biological
Chemical
Procurement
Packaging
Storage
Distribution

Fig. 2

ments will care for the dead.

Special Weapons: The primary reason for using atomic, biological, or chemical weapons is for their harmful effect on people. Health Services will advise on measures designed to prevent injury and minimize disability. Each of the weapons will provide health problems peculiar to the weapon of choice and many complex medical situations will have to be faced.

Medical Supplies: These will have to be available in large quantities. The materials will have to be packaged so that they can be used with speed and efficiency. Decentralization of stores will be essential as speed of distribution to user sites will be of the essence. A well organized health supplies system will be required at all levels.

THE EFFECT OF EVACUATION ON CIVIL DEFENCE HEALTH SERVICES PLANNING

The reappraisal of the civil defence health services program has been under way for the past year and a half. Many of the original working parties were recalled and new groups established. Some of the important points brought out in this re-assessment were as follows:

1. *Basic Principles the Same:* The basic principles in civil defence health services planning are:

> (a) peripheral mobilization of personnel, transportation and supplies; (b) central deployment of civil defence forces to the area of devastation; (c) mobile support from communities outside the disaster site.

These principles were established for the small A-bomb and are still considered practical for the large weapon. However, larger areas of destruction will make it necessary to mobilize at greater distances from vulnerable situations and coverage will have to be provided for much greater circumferences. Mobile support will need to be provided not only from adjacent areas but also from communities which may be several hundred miles from the disaster.

2. *Changes in Medical Services Arrangements:*

(a) *Primary Treatment Services* consist of the personnel, equipment and transportation required for advanced treatment centres and for the casualty collecting unit which operates in front of each centre. These units are designed to provide first-aid and primary treatment as close to the disaster site as possible. Flexibility and mobility are stressed and the new unit is about half the size of that established for the smaller weapon. The detailed arrangements for primary treatment services are described in another article in this issue.*

(b) *Hospital Organization*

(i) *Increasing Emphasis on Improvised Hospital:* As mentioned earlier, a considerable proportion of our best hospital resources will be lost and satellite units will have to be established in reception communities. The Canadian improvised hospital is mobile and can be transported in one large trailer or four 3-ton trucks. It can be set up in two to three hours, either as an extension of an existing hospital or as a separate self-contained unit. It will be used to supplement facilities in reception areas for displaced populations and also for casualties. The major change in thinking with regard to the improvised hospital is that this new establishment will provide for the *continuing* hospital care of the sick and injured.

(ii) *Hospital Evacuation:* Hospitals in the pre-selected cities will be evacuated during Phase A. The rapid and almost complete evacuation of a large modern hospital is a difficult and complex procedure. Very little information was available on this subject and Canadian planners had to carry out a time-motion study to obtain essential information. This time-motion study took place in Vancouver on November 19, 1956, with the cooperation of St. Paul's Hospital and civil defence authorities at the various levels. It provided answers to many of the questions and demonstrated that a hospital of about 500 beds could be evacuated in four to five hours, it also demonstrated that careful and detailed planning is essential to success. The study is described in greater detail in another article in this issue.#

(c) *Emergency Blood Services:* Most of the blood depots associated with the Red Cross Transfusion Service are situated in vulnerable areas. New depots will need to be established in reception communities. These depots will be used as primary units from which bleeding teams will go into populous areas to obtain blood. By decentralization it is hoped that a service can be established capable of collecting about 300,000 donations in 72 hours.

3. *Increasing Importance of Emergency Public Health Arrangements:* Emergency public health arrangements will be important not only in disaster areas but also on evacuation routes and in reception communities. The re-location of large segments of our population in smaller communities will lead to overcrowding and in many cases the essential health facilities will be inadequate. Measures to control communicable disease will have to be instituted and arrangements made to ensure a safe water supply. Other sanitary arrangements will be required for welfare centres and to supplement existing facilities. In addition, public health problems in disaster areas will require urgent attention. Our earlier planning for the disaster situation is still considered to be basically sound with certain modifications to provide for changes brought about by radioactive fallout.

4. *Special Weapons Arrangements:* The large atomic weapon not only has increased power, but also may create a serious fallout hazard covering thousands of square miles. Measures to minimize the effects of this residual contamination on people become an important health services matter. Prevention will be stressed, but plans also have to be made for treatment. The relocation of a considerable proportion of our total population in smaller communities also presents a situation which calls for a review of the probability of attack by biological and chemical weapons.

5. *Medical Supplies:* The original medical supplies program placed emphasis on the supplies required for casualties. It also relied on the availability of most of our hospital resources. A careful review of the situation supported the contention that the original supplies program should be completed

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*Primary Treatment Services by Dr. J. N. Crawford.

#Hospital Preparedness by Drs. W. D. Piercy and G. E. Fryer.

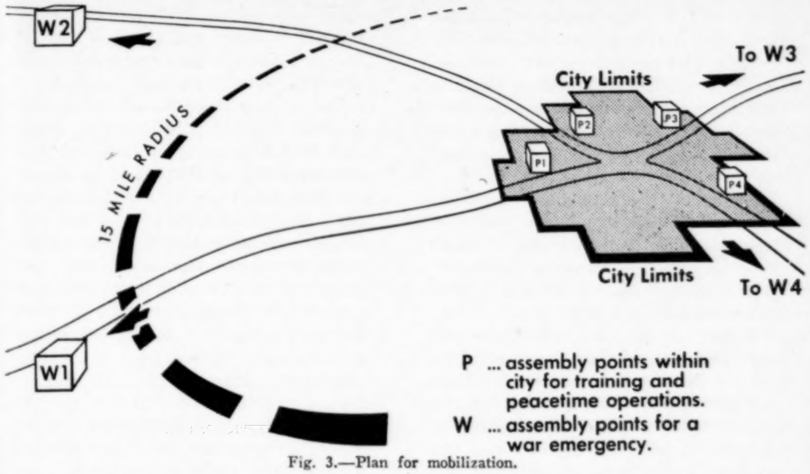
W2
To W3
City Limits
15 MILE RADIUS
P2
P3
P1
P4
City Limits
To W4
W1
P ... assembly points within city for training and peacetime operations.
W ... assembly points for a war emergency.

Fig. 3.—Plan for mobilization.

and this view has been accepted. However, provision must now be made for the care of casualties and non-casualties in self-contained improvised hospitals. Health material will be required not only for the disaster site but also for use along evacuation routes and in reception communities. Equipment will be needed to detect hazardous situations created by special weapons and to prevent and treat their harmful effects.

PROGRESS TO DATE

While the reader may have gained the impression that civil defence health services' planning in Canada is in a state of flux, it can be definitely stated that *most of the basic plans have been completed and we are at the stage of implementation.* This does not mean that full-scale civil defence forces will be mobilized at the present time. However, it does mean that basic units should be established. These units would be capable of dealing with peace-time emergencies and would form a basis for rapid expansion to meet civil defence war-time needs. This type of approach appears to have widespread support, as the units so formed are of moderate size and the problem of maintaining interest and activity is thus reduced to manageable proportions. *Therefore, the concept which is being accepted in Canada is that civil defence health services should be developed now to the degree necessary for peace-time emergency, and that these units would form the nuclei around which major war-time services can be built.*

This phased approach is being applied in the following way:

1. *Primary Treatment Services:* While over 800 of these units are required for Canada as a whole, initial development as established by consultation with the provinces will be about 400. Nucleus units consist of a scaled-down version of the war establishment, but having all of the essential component parts. Alternate assembly points are chosen within built-up areas for peace-time operation and for training (Fig. 3). Operational equipment is being stockpiled and training units are available.

2. *The Hospital Program* is well advanced and has been developed by a series of regional Hospital Disaster Institutes. Representatives from over 250 of the larger hospitals in Canada have attended these institutes, which were conducted in both English and French. The hospitals they represent contain about two-thirds of the active hospital beds in Canada.

A second phase in hospital disaster planning is hospital evacuation. Evacuation problems were studied at the Vancouver exercise, and information is being compiled and will be made available to Canadian hospitals.

3. *Professional Training*

Physicians — Over 400 Canadian physicians have attended courses on the medical aspects of disaster planning.

These courses last five days and are held twice a year at the Canadian Civil Defence College at Arnprior. The Canadian Association of Deans of Medical Faculties were approached last year and approved in principle short courses of training for undergraduate medical students.

Dentists — The physicians course has recently been modified to include material suitable for dentists. It is hoped that this combined course will strengthen a close working relationship between the two professions.

Nurses — Several years ago, 1300 nurse instructors were trained in the nursing aspects of ABC warfare. These instructors, in turn, provided shorter courses to about 35,000 Canadian nurses. A more recent development was the training of 210 nurse educators so that they will be able to establish teaching programs in schools of nursing across Canada. Eight provinces have already established courses of training for undergraduates. The most recent training program for nurses provided material of particular interest to public health and industrial nurses and representatives from the Red Cross Society and the St. John Ambulance Association.

Pharmacists — One hundred and twenty-five pharmacists have attended courses at the Civil Defence College at Arnprior. This program stresses the role of the pharmacist as a health supplies officer and also for emergency laboratory services. Civil Defence training has also been introduced into the curricula for undergraduates in all schools of pharmacy in Canada. .

4. *Casualty Simulation* is an art which has been developed to lend realism in the reproduction of simulated injuries and illnesses. It combines realistic make-up of injuries with the acting of symptoms accompanying such injuries in an appropriate setting. Canadian planners can be very proud of their pioneer work in this field. They have developed a useful tool not only for the training of lay personnel but also for teaching professional groups. An outstanding book has been prepared to assist with the teaching of the subject.* Courses have been held at the College and 150 persons trained as simulators. Thirty-two of these have received advanced courses qualifying them as instructors.

5. *First-Aid and Home Nursing:* Most civil defence workers will require first-aid training, and a special manual of instruction has been prepared to provide the type of first-aid teaching required in mass casualty care. It replaces standard first-aid text-books as far as civil defence is concerned and is entitled "Fundamentals of First Aid" by Dr. R. A. Mustard. It is available from the St. John Ambulance Association and will be provided to civil defence trainees.

Home nursing training has also been revised to meet civil defence needs, and both the St. John Ambulance Association and the Canadian Red Cross Society provide courses which have been modified for this purpose.

6. *Special Weapons:* Five working parties dealing with different parts of the special weapons program have submitted general recommendations dealing with this area of planning. These recommendations will form the basis on which the special weapons program will be built.

7. *Medical Supplies*

Procurement — Orders have been placed for about two-thirds of the supplies originally listed as essential to civil defence needs. Of this amount over 50 per cent has been delivered and the balance should be in our hands during the next fiscal year. It is anticipated that orders will be placed during the coming year to complete the original program. These supplies include materials for: Primary treatment services (Casualty Collecting Units and Advanced Treatment Centres); back-up supplies for hospitals; clinical laboratory kits; portable public health laboratories; emergency bleeding centres; health aid haversacks; health units in welfare centres.

Packaging — Most of the supplies so purchased will be packaged in functional units identified as to the area of the service in which they will be used. For example, advanced treatment centre supplies are identified for reception treatment, holding, evacuation and reserve supplies. This type of packaging allows the unit to be set up rapidly and to begin functioning in a minimum period of time. Prototypes have been developed for primary treatment services and considerable progress has been made with regard to hospital supplies. The remainder of the supplies will be packaged as bulk supplies to reinforce the original units.

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*Casualty Simulation—available from the Queen's Printer, Government Printing Bureau, Ottawa, at $1.00 per copy.

Storage and Distribution — Civil Defence has made arrangements with the Department of National Defence to act as the storing agency for these emergency supplies. They will, therefore, be stored in National Defence depots under the supervision of the medical services of the Armed Forces. An arrangement has been set up for the rotation of perishable stocks so that these items can be used and replaced during their shelf-life. Regional depots will be established across the country so that the supplies will be readily available for any potential target. The proposed system for regional storage is illustrated in Fig. 4.

The main regional, secondary regional, and sub-regional storage depots will be under Federal supervision. Distribution beyond these points to provincial and local levels will bring the supplies under the control of the appropriate civil defence authorities at these levels. It is expected that the supplies will be kept in regional storage until a state of emergency justifies further distribution. Local distribution before the event will be particularly important for materials required immediately such as supplies for primary treatment services, emergency bleeding centres and so forth. Training supplies are available and will be distributed through the provinces to units as they are established.

8. *Progress in Provincial and Local Planning:* The degree of progress in the development of civil defence health services plans at provincial and local level varies across Canada. Several provinces have made an excellent start on the development of the program and this is reflected in good sound basic planning in the various cities within these provinces. However, it must be admitted that in other provinces little if any achievement has been recorded. Where active provincial and local civil defence health services have been established, emphasis has been placed on the setting up of a good basic pattern for the area, with a review of potential resources. Training has been stressed to indoctrinate both professional and lay personnel. Hospital Disaster Institutes have been particularly popular and seem to offer the best approach to the development of realistic casualty services. Gaps in the program, in areas without plans, are making it difficult to arrange mutual aid and mobile support.

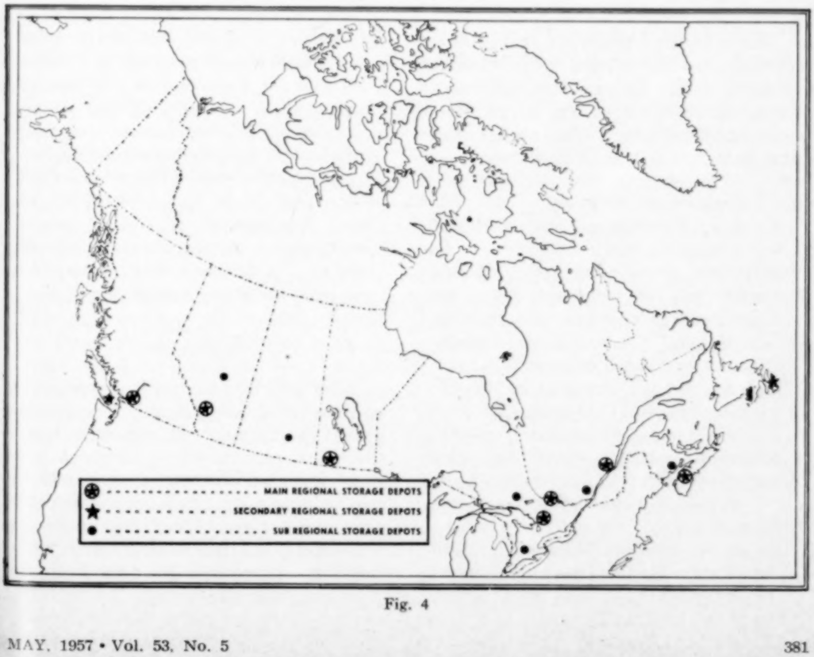
MAIN REGIONAL STORAGE DEPOTS
SECONDARY REGIONAL STORAGE DEPOTS
SUB REGIONAL STORAGE DEPOTS

Fig. 4

THE FUTURE

The stage of implementation will provide an acid test in the development of civil defence health services in Canada. During the planning stage, most of our problems could be solved by enlisting the support of a relatively small number of experts. This principle was adhered to by the setting up of a series of working parties which advised on the details of the program. About 130 Canadian physicians were asked to serve on these working parties and the response was most gratifying. However, in implementing civil defence health services plans, reliance must be placed on the *active* support of a much greater number of professional and lay people. The emphasis now shifts from central planning to provincial and local implementation. Grass-roots development is essential. This does not mean that a large number of physicians will be asked to devote long hours to the development of this program. However, it does mean that a substantial number will be asked to assist with the formation and training of units on a moderate scale. This type of program should not call for the setting aside of any more than one or two evenings a month, in order to achieve a reasonable rate of development.

While present plans are being implemented, further steps will be taken to finalize the changes brought about by an acceptance of the principle of evacuation. These areas for future development are as follows:

1. *Improvised Hospitals:* The Canadian improvised hospital has been tested and a working party established to finalize the list of supplies. A staffing pattern will be developed and plans formulated for operation and training.
2. *Hospital Evacuation:* Information gained at the Vancouver exercise is being analyzed and will be prepared for distribution to hospitals across Canada.
3. *Emergency Blood Services:* Arrangements for this service are being worked out with the Canadian Red Cross Society and it is hoped that a start will be made on the setting up of this service in the very near future.
4. *Public Health:* A working party will be convened to set out a pattern for emergency public health arrangements. The sections in the Civil Defence Health Services Manual dealing with water supply and sanitation have been revised and are almost ready for distribution.
5. *Training:* The present training program for physicians, dentists, nurses, pharmacists and casualty simulators will continue. In addition, it is likely that courses will be required for public health personnel.
6. *Special Weapons:* The details for a monitoring service will be developed and advice provided to reduce and treat harmful effects.
7. *Medical Supplies:* The extension of the original program is under review at the present time and recommendations will be made with regard to supplies for improvised hospitals, emergency cupboards in hospitals, public health requirements, and special weapons needs. Packaging and decentralization of stores to regional depots will be undertaken as soon as possible.
8. *Publications:*

(a) *Civil Defence Health Services Manual* is being extensively revised. Distribution is restricted to key personnel who are active in the civil defence health services program. Sections of the manual will be reproduced in pamphlet form for wider distribution.

(b) *Pamphlet on Hospital Disaster Planning* — This material is being prepared at the present time and will be available for circulation to civil defence and hospital personnel. Either it will include hospital evacuation or a separate booklet will be prepared on this subject.

(c) *Health Supplies Manual* is in draft form and should be completed in the next few months. It will be widely distributed to pharmacists across Canada and to civil defence authorities concerned with the health supplies program.

SUMMARY

This article deals with a reappraisal of the civil defence health services program in Canada. It outlines briefly the four phases of operational planning for civil defence, which includes the principle of evacuation for potential target cities. Progress in the development of the civil defence health services program is described and problems for the future are outlined.

Primary Treatment Services

J. N. CRAWFORD, M.D.

THE OBJECT OF THIS PAPER is to explain as briefly and simply as possible the organization and function of the primary treatment services for civil defence. A more detailed description may be found in the Civil Defence Health Services Manual published by the Department of National Health and Welfare.

The unit of the primary treatment services consists of two parts: (1) the casualty collecting unit, and (2) the advanced treatment centre.

THE CASUALTY COLLECTING UNIT

The casualty collecting unit is composed of a casualty collecting officer, who directs the operation of the unit, and three casualty collecting teams each composed of a team leader, a deputy team leader, six first-aid workers, and 36 stretcher-bearers. This organization of the casualty collecting team will allow for the formation of three stretcher-bearer groups in each team, each group being composed of two first-aid workers and 12 stretcher-bearers.

The function of the casualty collecting unit is to collect casualties and to transport them as quickly and comfortably as possible to the advanced treatment centre, at which point the first professional medical care will be available. Transport of casualties will, in the first instance, be by hand carry of stretchers. Stretcher-bearer groups will work as close to the centre of an incident as they possibly can, bearing in mind the hazards and obstructions which may exist in this region. At the most forward point in the line of evacuation which is possible in view of the nature of the roads and terrain, vehicles will be available to which casualties will be transferred, and thence transport of severe casualties will be by vehicle. At this point the team leader and his deputy will set up a casualty collecting post. Here the flow of vehicles to the stretcher-bearer groups and to the advanced treatment centre will be controlled, supplies to the stretcher-bearer groups will be replenished, and reinforcement supplies from the advanced treatment centre will be concentrated.

The function of the casualty collecting unit is purely one of first-aid and transport. There is no doctor or nurse on the strength of the unit. The supplies available to the unit are suitable only to the performance of this function. First-aid kits will be in the possession of the team leaders and deputy team leaders, the first-aid workers and the senior persons in each stretcher-bearer group. At the casualty collecting posts there will be a reserve of stretchers, blankets and dressings which may be replenished as required from the advanced treatment centre.

THE ADVANCED TREATMENT CENTRE

The advanced treatment centre is the first point in the chain of evacuation at which the casualty can receive anything in the way of professional medical care. The function of the unit is to receive casualties from the casualty collecting unit operating in front of it, to clear casualties rearward to better equipped hospitals, and to provide such treatment as is essential to casualties awaiting rearward evacuation.

The location of the centre should be chosen with its function in mind. Obviously since provision of emergency treatment at the earliest possible moment is of the utmost importance, the centre should ideally be located as far forward as possible. This idealism must, however, be tempered by such practical considerations as accessibility by vehicle, protection from fire or radiation fallout, and the availability of adequate shelter for patients.

Dr. Crawford is Director General of Treatment Services, Department of Veterans Affairs, Ottawa. Reprinted, with permission, from the *Canadian Medical Association Journal,* March, 1957.

The personnel of the advanced treatment centre are: two medical officers, one administrative officer, two professional officers (dentists, pharmacists, veterinarians, etc., whose skill can be used as assistant medical officers), one supply officer, three transport officers, four nurses, 30 nursing auxiliaries and first-aid workers, two clerks, 12 stretcher-bearers, and one welfare worker. The duties of these various categories of personnel are fairly obvious from their titles, but are described in detail in the Civil Defence Health Services Manual.

The important thing to remember is that the advanced treatment centre is primarily an evacuation unit. Medical or surgical procedures, undertaken there should be confined to those which if immediately applied may save life or will support the patient during transport to hospital. The supplies available in the centre are designed with this function in mind. Some allowance has been made for holding up to 100 patients for brief periods if this is necessary because of some failure in the line of evacuation, but such holding should be regarded as the exception rather than the rule.

Within the advanced treatment centre one of the medical officers will carry out the very important function of sorting casualties into categories for priority of evacuation.

With respect to treatment, it will be important that medical officers and their assistants should not try to do too much. Treatment should, in the main, be limited to such procedures as the control of hemorrhage, immobilization of fractures, dressing of wounds and burns, and the treatment of shock. The hospital and not the advanced treatment centre is the place to attempt any major surgical repair.

Assembly Points

The question will doubtless arise as to how the units of the primary treatment services get into position in the event of a disaster. In the preplanning for a disaster a number of locations outside the probable area of involvement will have been designated as assembly points. At these the medical supplies and equipment of the casualty collecting unit and the advanced treatment centre will have been stored in packaged form. In the period of alert or at the time of the disaster the personnel of the unit will assemble at these points. At the same time vehicles necessary for the operation of the units will also proceed to the assembly points. These vehicles are, for the most part, stake trucks. They will load up with supplies and personnel and proceed to the location in which the unit will work and which will be determined by disaster control headquarters. Once offloaded, these same vehicles will be utilized for the transportation of casualties.

Feeding Arrangements

No foodstuffs are included in the stockpile supplies for primary treatment services. The provision of meals to patients and staff is the responsibility of the welfare services. It is the duty of the welfare officer on the strength of the advanced treatment centre to maintain liaison with the welfare services and to arrange for the provision of food as best he can. It should not be expected that much more than hot drinks will be available in the primary treatment services for the first few hours of operation.

Flexibility

In the above description of the function of the primary treatment services a picture has been given of the orderly flow of casualties from stretcher-bearer groups through casualty collecting posts and advanced treatment centre to the hospital. The assumption has been made that sufficient personnel, sufficient transport and sufficient accommodation will be available to make this smooth operation possible. It is most improbable that in the event of disaster all these factors will be satisfactorily met. A good deal of ingenuity will have to be exercised and *ad hoc* arrangements will have to be made if the task of the primary treatment services is to be carried out in any reasonable way.

It is almost certain that the personnel assigned to the unit will be insufficient for the task. Local recruitment from whatever resources are available should be carried out as required. For this purpose persons who arrive at the advanced treatment centre with minor wounds may be persuaded to help.

As one advanced treatment centre becomes clogged with casualties, it will be necessary to close it temporarily to further admissions and to direct new casualties to another nearby treatment centre. Such a manoeuvre will require the cooperation and control of the casualty control headquarters.

Vehicles will almost certainly be in short supply. Even if a primary treatment unit has all the vehicles allotted to it, these will likely be found to be inadequate to keep the unit functioning. Transfer of vehicles from a closed advanced treatment centre to an open one is to be expected. Additional vehicles, if available, may be supplied from casualty control headquarters.

In any operation such as this, an adequate system of communications would normally be regarded as a necessity. One of the transport officers on the strength of the advanced treatment centre will be responsible for maintaining liaison with the hospital to his rear and the stretcher-bearer groups to his front. It is not likely that he will have much equipment to help him in this. A two-way radio-equipped taxi would be ideal, but these will be required in other parts of the casualty control operation. The communications officer will therefore have to rely largely upon messengers, most likely utilizing the drivers of ingoing and outgoing trucks for this purpose.

Readers of this description of the primary treatment services who have been familiar with the operation of a field ambulance in time of war will recognize certain points of similarity of organization in the two units. This is a matter which gives some reason for hope for the success of the civil defence unit system described, since the field ambulance is known to work under adverse field conditions. It is a simple enough matter to set down on paper an organization for a unit to do a theoretical job. It is quite a different matter to guarantee that this organization will be effective when it is put to work. It is suggested that casualty collecting units and advanced treatment centres should exercise with other elements of the civil defence organization at every opportunity. Only thus can the defects of its organization be revealed in time to take any useful corrective action.

In the Good Old Days

(*The Canadian Nurse* — May 1917)

Since 1901, nearly four million immigrants have come to Canada. Of these, 62.5 per cent have settled in cities of over 5000 population while only 17.6 per cent have gone into rural areas.

* * *

There is great need for hospitals where patients suffering from extreme nervousness or some mental condition could be sent for observation and treatment. Mentally sick patients should be under the care of fully qualified nurses — not left solely to attendants as is usually the practice.

* * *

Prior to 1906 there was little provision for diversionary occupations for patients in general hospitals. Since then, thanks to the imagination and thoughtfulness of a nurse, invalid occupation has been an accepted part of treatment. Once hospital administrators realize the benefit that follows occupation, money will be found for the necessary supplies and nurses' time to teach patients.

* * *

Serious consideration is being given to how best to serve the public yet at the same time to give an all-round education to the nurse.

* * *

Hospitals that have small classes of students have found it practical to merge the second and third year classes and arrange lectures so that each subject is taken up in alternate years.

* * *

There are 20 cities and towns in Ontario where medical inspection of the school children is provided.

Hospital Preparedness

W. D. PIERCEY, M. D. AND G. E. FRYER, M. D.

ANY HOSPITAL, large or small, rural or urban, should be organized to meet a large influx of patients from a civilian disaster. The hospital as a vital community health centre cannot afford to neglect this responsibility if it is to discharge its complete obligation. While this always has been the case, because of the atomic age the hospital has a further duty of understanding its role in a national emergency. There is only one way in which a hospital can be ready to meet these obligations and that is through planning in advance. This involves close team work between many groups, within the hospital and the community. Within the hospital there has to be close liaison among the medical staff, the administration, the nursing service and dietary departments, and to some degree with departments such as engineering, laundry, stores, purchasing and pharmacy. A hospital preparedness plan will not be complete until such groups as the local civil defence, police, fire and other municipal departments have been consulted and utilization of their services provided for.

While details will differ from hospital to hospital, much procedure in hospital disaster planning is standard. In an effort to assist and stimulate hospitals in their planning, a number of two-day meetings have been held throughout Canada. At these, each hospital has been represented by the chief of staff, the administrator, and the director of nursing. Model disaster plans, suitable for large and small hospitals, have been presented. During sectional meetings and group discussions new ideas have been exchanged and as a result there now exist several excellent Hospital Disaster Plans which are available to assist individual hospitals of all sizes.

What are some of the essential features in planning for hospital preparedness? First, the hospital board must be interested, and planning must proceed with the board's knowledge and active support. It must be realized by all groups that disaster planning is not a theoretical exercise but one that has a practical application. Of all the people responsible for the development of the plan the hospital administrator is the one who should take the initiative in seeing that a committee on disaster planning is organized. This committee will have the over-all responsibility of ensuring that the various segments of the hospital develop their particular part of the plan and that the various facets fit together in one coordinated whole. The purpose of a hospital preparedness plan is to make certain that the hospital can accept a large number of casualties on short notice, that they are sorted speedily and given adequate and prompt treatment.

Having set up the nucleus committee on planning, the administrator will then estimate potential hospital expansion, assign areas of responsibility with other staff and see that plans are completed for the evacuation of patients in hospital at the time of disaster and arrange for policing of buildings and grounds. The development of hospital emergency orders, the application of training principles and practices for personnel, the provision of an information centre for both the press and relatives, the development of standing hospital emergency orders, are all major areas of essential planning. Administrative arrangements also have to be completed for the admission and inflow of casualties; records and documentation; care of valuables; identification of hospital personnel reporting to the hospital, and extended mortuary arrangements.

The active participation of the medical staff through various committees is essential during the plan's develop-

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ment. The establishment of a physicians' pool within the local medical society is important in the early planning. This pool will contain the names of both active and inactive doctors and should be checked at least at six-month intervals. The person in charge of this pool should remember that physicians must be so assigned as to prevent overlapping of medical staff in other hospitals and keep in mind that some doctors may be required at the disaster site. The estimation of additional medical staff required in times of disaster, the reallocation of clinical areas in the hospital, and the assignment of doctors from the physicians' pool as members of various teams required either within their own area or in some other community also must be considered. An estimate by the medical staff of patients in hospital capable of being discharged is important. During planning it must be recognized that under emergency conditions there will be a suspension of the normal doctor-patient relationships and that it will be necessary to have standing emergency treatment orders. These must be discussed at medical staff meetings and the policy approved by the medical staff as a whole.

The department of nursing has an integral part to play in hospital disaster planning. Not only must the director of nursing be on the nucleus committee from the start, but early participation of supervisory and head nurse staffs is essential. Regular meetings of the nursing subcommittee should be held. If a register of nurses has not been established in the community, this should be done through the local Nurses' Association to ensure individual assignment of nurses without overlapping between hospitals. If it is found that there are not enough nursing personnel in the hospital the need for assistance from a mutual aid or support community should be stated. The planning for reallocation of clinical areas to meet the disaster needs, the reassigning of existing staff to clinical disaster and non-casualty areas, and establishment of a routine for tagging and discharging patients designated by the medical staff are all matters in which the director of nursing must be consulted and kept informed as the plan develops.

In estimating the additional nursing staff required in time of disaster, including graduate nurses, auxiliary nursing personnel and volunteers, it will be necessary to consider plans for a moderate and a mass disaster. It will be of great assistance to use various insignia to identify various levels of nursing and auxiliary personnel. Provision for a cupboard containing emergency supplies is an important part of the disaster plan.

Three methods can be used to ensure sufficient space for casualty accommodation:

1. The evacuation of all hospital patients who can be discharged to their homes or elsewhere.
2. The expansion of beds in areas which ordinarily have beds.
3. The setting up of beds in hospital areas not usually used for treatment.

In evacuation planning the degree of proposed evacuation is important and this can be facilitated if patients are designated to fit into one of four categories while they are in the hospital. The results of several hospital appraisals show that all patients in a hospital can be divided into the following categories:

1. *Mobile.*—These people are up and around and can be moved with the least amount of disturbance.
2. *Mobile with aid.*—This group requires some supervision but need not be evacuated prone.
3. *Stretcher cases.*—There are two subgroups to this classification: (a) Those that require only stretcher transportation. (b) Those that require special attention, such as fracture cases in fracture frames or those recently operated upon.
4. *Dangerously ill.*—Usually from 3 to 5 per cent of the hospital population which could not be moved.

The area for reception of casualties should be chosen carefully. It must be readily accessible to vehicles bringing in the casualties and large enough for the reception team to carry on their work speedily and effectively. Some casualties will come by ambulance, others by trucks and private motor cars. Ideally, one requires a ground floor area where the vehicles can approach readily and discharge their casualties quickly and thus keep a steady flow of traffic. In many hospitals the best area possible will be the outpatient or emergency departments. Close coordination between medical, nursing and clerical staff assigned to the reception area is important. This coordination is best accomplished by someone familiar with the whole hospital and staff. He is designated the "reception officer" and carries considerable responsibility. Under him will be the medical staff receiving unit, nursing team, clerks to assist with statistical information, and stretcher carriers. Their function is to expedite the reception, documentation, and admission of casualties. Casualties are sorted as to injuries and designated for specific treatment areas. Usually they are divided into the following major categories. The first consists of those requiring immediate surgical or medical treatment. Usually three subgroups are given under this heading:

> (a) Those requiring surgical care and in fit condition for immediate operation are sent to the operating room. (b) Those requiring surgical or medical care but in severe shock will receive initial treatment in the sorting area and then will be forwarded to a resuscitation area. (c) Burn cases will be sent to another designated area.

These three sub-divisions of group number one will be very important. They are real emergencies and require immediate and urgent treatment. The purpose of a disaster plan is to bring good medical attention to them quickly.

The second group are those who require hospital admission but whose need of medical or surgical attention is not immediate. These are sent directly to designated ward areas. Among this group there will be a number of psychiatric cases to be segregated on special wards. In the third group are casualties requiring first-aid treatment only. They do not need to be admitted and are sent to another area, treated and sent home.

An adequate reception area is an important part of the plan for hospital casualty care. Not only must the area itself be well chosen, but the members of the medical staff team who act in the area must be selected with extreme care. This is the area where the medical staff's best surgical and medical experience and judgment is required. This is necessary for proper triage and the prompt removal of casualties to the various treatment areas. In planning the treatment of casualties, responsibilities are divided among the chief of surgery, the chief of medicine, the director of laboratories, and the radiologist. The chief of surgery is usually responsible for the following seven units: (a) the receiving unit, (b) the first-aid unit, (c) the burn unit, (d) the operating room teams, (e) surgical casualty wards, (f) anesthetic units, (g) surgical units. The chief of medicine is responsible for five areas: (a) evacuation unit, (b) resuscitation unit, (c) psychiatric unit, (d) non-casualty patients, (e) medical interns. The director of laboratories has the following three areas under his jurisdiction: (a) emergency laboratory services, (b) blood and plasma services, (c) morgue service. The radiologist is responsible for emergency x-ray service. The allocation of individual members of the medical staff to the various areas is decided by a medical committee or the chief of staff.

During an emergency everyone will be working at top speed, maybe for some 24 to 36 hours. In developing a hospital preparedness plan it is therefore essential for standard methods of treatment to be decided in advance by the medical staff in any particular hospital.

A hospital preparedness plan as outlined will serve any hospital well in meeting emergency situations in its own area but, because such a large number of our hospitals beds are situated in metropolitan areas which might be untenable in time of national emergency, additional plans have to be prepared for these metropolitan hospitals, which include rapid evacuation and reestablishment in satellite units.

Civil defence planners, recognizing that an acute shortage of beds might arise after an international incident, have developed an improvised hospital unit of 200 beds which can be used in two major roles:

> 1. In the care of mass casualties, probably on a continuing basis.
>
> 2. In the medical care of non-casualty cases in the reception area either as an extension to an existing hospital or as a separate unit.

The feasibility of using the unit as an extension of an existing hospital has been tested and the general principles have been declared sound.

Before a hospital can progress to this second stage of community planning it must have a workable plan for local disaster with its premises and staff intact. It is then an easy progression to the more involved plan of evacuation for both patients and staff.

Disaster planning for the larger incident falls naturally into the same three areas of administration, medical staff, and nursing service found so essential in the production of local disaster plans.

In both cases, hospitals will be the focal point for civil defence casualty services and for the medical care of seriously ill non-casualty cases. Hospitals cannot, however, operate in a vacuum and both situations call for active cooperation with the civil defence organization. No hospital can develop either plan without being aware of the local arrangements with regard to such areas as transport and communications, or the over-all Canadian plan for the provision of medical supplies.

Very few hospitals will be called upon to put their plan into action within six months or a year of its development and some may not have to activate the plan for many years. The question arises — how is the plan to be kept alive with changing personnel? A good disaster plan can quickly become obsolete unless a planned program is laid down to keep the plan alive. A few suggestions that will assist are: regular hospital staff conferences, systematic recheck of paper plans, orientation of all new staff and training programs for hospital employees and volunteers, liaison with other hospitals and agencies regarding local arrangements within the plan and alternating persons responsible for various areas so that many may become familiar with details, the carrying out of sectional exercises and periodic checks on the plan by civil defence authorities and representatives of Civil Defence Health Services. All these are important facets to ensure that the plan is kept alive and up to date.

Early Medical Management of Mass Trauma

LT.-COL. A. C. DERBY, M.D.

THE ENEMY WILL EXPLODE a nuclear weapon over one of our strategic cities or in the field of battle. From the standpoint of treatment, there will be a number of differences between these sites of explosion. Traumatic cases will probably be more numerous in the city explosion, because of the greater hazard from falling buildings. In the field we will have to deal with the injuries produced by conventional weapons as well as those produced by a nuclear weapon. Finally there will be an organized scheme of treatment and evacuation in the field while, in the city, some type of untried civil defence organization will be the only method of triage. Whatever type of treatment and evacuation is used will, of necessity, be based on the military because only in the military is there any background and experience in the successful treatment of large numbers of casualties.

WAR SURGERY

It would, therefore, not seem out of place to review briefly the principles and practices of war surgery before attempting to detail the treatment of the wounds expected in a nuclear explosion.

War surgery is a branch of traumatic surgery but the requisites of a military surgeon go beyond a thorough knowledge of trauma, for he must be

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cognizant of the particular problems of treatment and evacuation in the field as distinct from the treatment of the traumatic case in the casualty ward of a civilian hospital. He must sacrifice his individuality to a greater or lesser degree and adhere rigidly to certain tried and proven principles of war surgery. On the other hand, he must be flexible enough to be able and willing to modify ruthlessly his surgical approach when the tactical situation demands.

Specifically, it is the problem of the military surgeon that, under adverse circumstances, he must treat large numbers of casualties and extend surgery to them within the "golden period." This "golden period" is an arbitrary period during which surgery is extended to casualties before a potentially infected wound is converted into an infected one.

How is this possible?

By establishing first-aid and evacuation facilities close to the forward defended position, so that large numbers of casualties can be brought back as quickly as possible and in the best condition possible to surgical care.

This, in turn, means the organization of surgical units as far forward as is safely possible, so that the lines of evacuation can be reduced to a minimum. It will readily be appreciated that these hospitals must be sufficiently mobile to follow the most fluid type of warfare. To this end, equipment and supplies must be kept to a minimum.

The sacrificing of equipment to facilitate mobility will be reflected in a limitation of postoperative bed strength, necessitating larger and relatively fixed hospitals in the rear for early evacuation. Finally, hospitals will be needed in the "zone of interior," like our D.V.A. and military hospitals in Canada, for definitive care to the more seriously wounded. It will be appreciated that many of the minor wounded may be ready for duty after treatment at base hospital.

It will now be seen that there are four distinct levels of treatment in military surgery, each serving a different function and each being of equal importance:

1. Initial medical care at Field Ambulance level
2. Forward surgery at Advanced Surgical Centre and Casualty Clearing Station level
3. Base Hospital care
4. Zone of Interior care

Let us for a moment discuss the surgical implication of each of these units. The initial care in the forward area should be directed towards those emergency measures which will preserve life and facilitate early and comfortable evacuation. These may be conveniently listed in order of priorities under six headings:

1. The arrest of hemorrhage
2. The correction of acute anoxia
3. The relief of pain
4. The splinting of fractures
5. The treatment of shock
6. The preparation for evacuation

Pressure dressings will control hemorrhage and have the obvious advantage of preserving the flow of blood in collateral channels. However, a properly applied tourniquet is still preferred for the control of major arterial bleeding in an extremity where evacuation is anticipated, pressure dressings being substituted as soon as a casualty reaches a forward surgical unit and comes under constant static medical supervision before operation. Venous oozing or minor arterial bleeding must be distinguished from acute major arterial hemorrhage.

Acute asphyxia in the battle casualty occurs as the result of a penetrating wound of the chest with a tension hemo-pneumothorax or obstruction to the airway from a wound of the face, oral cavity or neck.

Aspiration of blood and air by a large bore needle which may be left *in situ* is life-saving in the presence of a bronchopleural fistula with severe intrapleural hemorrhage.

The recognition of the necessity for and the ability to perform a tracheotomy must be part of the requisites of a Field Ambulance medical officer.

Morphine in small doses and by the intravenous route is the analgesic of choice in the field. Beecher has suggested that barbiturates be substituted where sedation rather than analgesia is indicated.

The importance of adequate immobilization of fractures for transportation cannot be over-emphasized. Recognized methods of temporary splinting by regions of the body are thoroughly described elsewhere.

Treatment of shock in the forward area where evacuation is mandatory is a debatable point. Supplies and the time required will be limited at F.A. level. Inadequate resuscitation followed by evacuation frequently results in return of the shocked state. These same patients are later frequently refractory to further resuscitative measures. A mildly or even moderately shocked patient seems to tolerate well the rigors of transportation. It is recommended, then, that the limited supplies of resuscitative fluids at F.A. level be reserved for the profoundly shocked as a life-saving measure.

Preparation for evacuation must include immobilization of all fractures, and the placing of unconscious patients and those with chest problems in appropriate postures.

The essential functions of the forward surgical units are: (1) Resuscitation; (2) arrest of hemorrhage; (3) prevention of infection.

After participating in two wars, I have never ceased to wonder at the ease with which severely wounded patients are handled in an Advanced Surgical Centre. Within a few hours, a shell-pocked grain field can be converted into a life-saving major surgical hospital by the addition of a few pieces of canvas and a few truckloads of equipment. In a matter of minutes, 20 casualties, all sick unto death, can be lying on stretchers in the resuscitation tent with active treatment of their shock being carried out in an orderly fashion by no more than two doctors and a small group of orderlies. It is particularly interesting if one realizes that any three of these casualties would throw the outpatient department of any of our larger city hospitals into complete confusion. The reason why this ordered routine is possible in the field is because adequate, unhurried, organized resuscitation is recognized as a necessary step before surgery and, further, a special ward with all the necessary equipment is set aside for just this purpose. All shocked patients are evaluated and treated in this ward before surgery is anticipated. The diagnosis is made here, dressings are changed, wounds are noted, radiographs are ordered, antibiotics and antisera are given and a graphic chart of the patient's temperature, pulse, respirations and blood pressure is started. Blood is the resuscitative fluid of choice in the field, supplemented by plasma expanders and electrolytes, the proportion of each being determined by the site of the wound, the degree of tissue destruction and the estimated blood loss. Fluid replacement is relentlessly continued until the blood pressure is above 100 mm. Hg with a pulse pressure of 30 or better and a pulse rate under 100. Surgery is never rushed into. It is only when active, energetic resuscitative measures fail that the patient is taken to the operating room as a last resort.

Modern thinking is too prone to reflect the premise that replacement of blood volume is synonymous with the treatment of shock. No one will argue with the thesis that the return of an adequate circulation is of prime importance in the relief of shock; however, other patho-physiological changes have occurred as a result of the wound and must be corrected before resuscitation is possible.

The correction of anoxia due to a penetrating chest or head wound, the immobilization of fractures, the relief of pain in an extremity wound, and the initiation of intragastric suction to relieve distension and vomiting in a penetrating abdominal wound, are essential steps in the resuscitation of the severely wounded.

Infection can be prevented by the adequate debridement of all wounds during the "golden period." Debridement implies the removal of dead and contaminated skin, subcutaneous tissue, muscle and bone with a minimum of reparative surgery to structures deep to the skin, with the exception of those organs which require immediate functional restoration for maintenance of life or limb, such as a ruptured small bowel or a severed popliteal artery. Wounds once debrided are left open for delayed primary closure.

The next level of care is at a base hospital, where treatment is of a different nature. It is directed toward the closure of the previously debrided wounds and the preparation of the seriously wounded for evacuation to "zone of interior." Ideally, closure is undertaken 5-7 days after initial debridement. Wounds are closed by undermining and direct suture, by rotating flaps, by split skin grafts and other recognized methods. Preparation of the seriously wounded for evacuation includes stabilization of nutritional deficiencies, treatment of infection, immobilization of fractures and other corrective measures to facilitate the long journey home.

The final stage in this fractional care of the seriously wounded military casualty is given in our D.V.A. and military hospitals in Canada. Here attenuated skin is replaced by full thickness coverage, neurorrhaphies are done, colostomies are closed, tendons are repaired and definitive orthopedic procedures are done. This may seem a roundabout method of arriving at definitive care, but it has been the experience of military surgeons that this staged surgical treatment cannot be shortened; moreover, when attempts are made to accelerate this care, increase in mortality and morbidity is invariably the result.

NUCLEAR WEAPONS

With the above as a background, we might now consider problems of treatment of trauma associated with atomic bomb explosion.

A nuclear weapon will produce casualties from blast, heat and irradiation. It is estimated that 50% of the living casualties will be suffering from burns, 50% from mechanical injuries and 50% from irradiation. Many will have more than one type of injury, hence the total is over 100%.

The etiology of traumatic wounds in a nuclear explosion differs from those resulting from the conventional weapons. In a war of artillery, mortars, mines and small arms, wounds are produced by penetrating or perforating metallic foreign bodies. Wounds in an atomic explosion will be the result of the secondary effects of blast, i.e., trauma produced by falling buildings, uprooted trees, flying boulders and masonry. Contrary to expectations, atomic bombs have not produced many primary blast casualties, as all injuries within a thousand feet of ground zero will be fatal — the lethal radius being markedly increased in a thermonuclear explosion.

Shirabe found in a survey of 800 survivors from Nagasaki that the majority of injuries were crush injuries, contusions, abrasions, lacerations, sprains, avulsive injuries and simple fractures. We can presume that a large number of the traumatic cases will be of a minor nature, and that the majority of the more serious cases will be open and closed wounds of the extremities, multiple wounds, wounds complicated by burns or irradiation syndrome, blast injuries and, less frequently, open and closed wounds of the head, chest and abdomen.

For the sake of realism and a better understanding of the magnitude of the effects on life and limb, let us assume that a megaton bomb has been dropped on one of our larger Canadian cities, producing some 250,000 living casualties. If 50% are traumatic cases, we will have well over 100,000 casualties to treat.

The culmination of the efforts of military surgeons in the three wars of the 20th century resulted in a mortality rate of 3% in Korea in those casualties fortunate enough to reach the medical chain of evacuation. Four factors are probably most responsible for this remarkably low figure:

1. Early evacuation with marked reduction in lag periods between wounding and surgery
2. Abundant equipment, including resuscitative fluids
3. Adequate surgical potential
4. Surgeons trained and disciplined to adhere to the principles of military surgery.

In such a disaster as we have visualized with 100,000 traumatic casualties, it is only realistic to assume that lag periods will be markedly prolonged, that equipment will be markedly reduced, that surgical potential will be reduced to a minimum, and that most of the available surgeons will have little or no knowledge of the principles of military surgery.

If, then, we must deviate from the high standard of surgical care given in World War II and Korea, what alternative plan can we adopt and what will be the results?

It is difficult to visualize the state of confusion that will exist in any functioning medical unit shortly after the blast occurs. Certainly it will not be the ordered routine which prevailed in most instances in conventional warfare.

Our troops were bombed by the Allies in Normandy on two occasions in early August, 1944. On each occasion our casualty clearing station set up outside the city of Caen was overwhelmed. In a short period the casualties overflowed the admission and resuscitation tents, and soon the meadow adjoining the unit was filled with stretchers. It was absolutely impossible for our small staff to deal with this large group of wounded. Casualties died for lack of care — from exsanguination for lack of a tourniquet, from acute anoxia for lack of a needle in the chest or a tracheotomy and from profound shock for lack of adequate resuscitative fluids. How much greater the problem and more profound the confusion in a sudden atomic explosion!

A New Philosophy

Let us now review the more serious traumatic case in the light of this new philosophy. Which of all the serious wounds are the most deserving of early operation? What results can we expect by denial of operation and what conservative methods are available to us?

A group of casualties can be anticipated with relatively minor wounds, requiring little of resuscitative fluids but needing immediate life-saving operation, folowing which survival can more or less be assured. Into this category would fall patients with hemorrhage from an easily accessible site, rapidly correctable mechanical respiratory defects, and traumatic amputations. It is suggested that operation be extended to this group wherever possible.

It is also suggested that priority for early debridement be given to the extensive lacerations and avulsive wounds along with the frankly compound fracture with a viable limb and limited degree of tissue destruction and shock. A combined burn and mechanical injury poses a difficult problem. Each lesion must be considered on its own merits. For example, I see no reason why a combined full-thickness burn of the leg and a simple fracture of femur cannot be treated by debridement of the burn and immobilization of the whole limb in plaster.

Chances of survival of the traumatic case complicated by irradiation are markedly reduced. Priority for treatment must be considered in the light of this phenomenon.

We are now confronted with the problem of what to do with the large group of gravely injured people upon whom we have neither the time, the equipment nor the surgical potential to operate early. In this group will fall multiple wounds, wounds of the central nervous system, severe crushing injuries, severe wounds complicated by burns or irradiation, blast injuries and wounds of the abdomen and chest. If circumstances are so extenuating that early surgery is delayed or denied, everything may still not be lost. Let us now consider some of these cases in terms of expectant treatment.

Unfortunately there will be a group of patients who have been profoundly traumatized, their injuries being so severe and so extensive that all we can hope to do is make them as comfortable as our resources allow. The severe sprain, contusion and abrasion which arrive at the forward hospital need little immediate care. Relief of pain and immobilization will usually suffice. With closed fractures or even the type of compound fracture in which the skin is broken but the bone is not protruding, treatment can be delayed for days or weeks without any great deleterious effects provided there is adequate antibiotic coverage and proper immobilization of the fractured bone ends.

The treatment of closed head injuries is generally conservative. The indications for surgical interference are specific and very limited. Both closed and open head injuries travel well and can be dealt with by neurosurgical teams at a distance provided an adequate airway is maintained during evacuation. Open head injuries decompress themselves and, if surgery is delayed, many of these cases can wait with adequate first aid including antibiotics and occlusion dressings.

On the whole, the care of blast injuries is conservative. A ruptured eardrum is protected against infection. A blast chest manifest by dyspnea, chest moisture and hemoptysis is treated symptomatically by sedation, rest and oxygen administration. Caution must be exerted to avoid precipitating edema by overzealous venoclysis or injudicious use of anesthesia. Abdominal blast injuries must be observed in order to detect the occasional case complicated by a ruptured hollow viscus, infarction or persistent hemorrhage.

Many patients with severe chest wounds might survive, where operation is delayed or denied, with adequate resuscitative measures and antibiotic coverage, repeated aspiration of a hemo-pneumothorax or the application of an occlusive dressing over a sucking chest wound.

Abdominal wounds are more serious. The excellent results reported on conservative treatment of perforated peptic ulcers by Seeley and others, however, make one wonder whether by continuous gastric or intestinal decompression, re-establishing of acid-base balance and intravenous injection of wide-spectrum antibiotics a certain percentage of cases of perforation of the stomach, small bowel and solid viscera could not be saved, in a dire emergency, by conservative treatment.

If time is of the essence, then there will be time only for life-saving surgery. We must modify our surgical techniques so as to reduce operating time to a minimum. Debridement may have to be limited to adequate drainage; this of course is not ideal, but it will ensure that infection, when it does occur, will be localized to the site of injury. We must ligate even the most major vessels rather than attempt a time-consuming primary arterial suture or vein graft. We must amputate those extremities whose chance of survival is small, and we must modify our technique in the abdomen and chest to save time.

It will now be apparent that in the advent of a thermonuclear explosion, there will be a marked discrepancy between casualty loads and medical man power. The paramedical groups will be called upon to assume increasing responsibility. In this group will be included nurses, dentists, pharmacists, veterinarians, laboratory assistants, etc. The nurse, with her more intimate knowledge of the medical skills will be called upon to perform many life-saving procedures normally the responsibility of the physician.

She may well be the best qualified person in a given situation to render succor to an injured casualty. A nurse, well versed in the principles of practical first aid, would be of invaluable assistance in the initial care of the profoundly injured patient. Her ability to dress a wound, splint a fracture, apply a tourniquet or initiate an infusion of blood might well free a physician for other more exacting tasks. It would also not seem beyond the scope of a nurse, with operating room experience, to do such minor operative procedures as superficial debridements, suture of lacerations, etc., under supervision. By so doing she would increase the hourly output of an overcommitted surgical unit.

These and other duties may well be thrust upon the nurse in mass disaster. How well she will be able to perform under disaster conditions will depend to a great extent on how much thought and pre-planning is given by the nursing profession to this terrible challenge.

SUMMARY

The importance of intelligent first aid, organized resuscitation and fractional surgical care has been emphasized.

Because of overwhelming numbers of injured patients our meagre surgical potential must be used to the best advantage. It is proposed that to do the greatest good for the greatest number, we must ruthlessly exclude all cases with extensive wounds and not waste time on the minor injured. It is suggested that priorities for treatment will fluctuate according to casualty loads, availability of supplies and surgical potential. Priorities for early surgery have been predicated in the light of maximum returns for minimum of effort. Where early surgery is to be delayed or denied, the methods and results of conservative treatment have been postulated. Finally, where medical potential is markedly reduced, the place of the professional nurse in mass disaster has been described.

Nursing Care of Traumatic Injuries

ISABEL REESOR, M.A.

RESPONSIBILITIES

THE NURSE'S first responsibility is *to recognize the need for immediate and later treatment.*

Secondly she must *institute the necessary treatment in accordance with standing orders.*

A nurse must be alert in her observations of signs and symptoms and have some knowledge as to the cause and the seriousness of these changes. It is only with practice that she becomes adept in these observations. She must understand not only *what* to do when she institutes the necessary treatment, but also *why* this procedure is a standing order.

The nurse is not only responsible for the physical care of the casualty but also for his emotional well being. She must be aware of and be able to recognize the emotional reaction of trauma encountered in mass disaster. The pamphlet "Psychological First Aid in Community Disasters" lists the five common patterns of reaction to unusual emotional stress and strain:

> *Pattern 1:* Almost everyone will show signs of emotional reaction. If it is of short duration, it can be considered normal and will require no special attention.
>
> *Pattern 2* includes persons who go into an "individual panic" or "blind fright" reaction. These persons need prompt and effective action to protect them from the consequences of undirected behavior and also to prevent them from spreading panic.
>
> *Pattern 3* includes those who are not quite so active but who need something useful to do which requires considerable physical exertion to drain off the excess energy.
>
> *Pattern 4* includes persons who are stunned by the tragedy and are depressed and lethargic. They will need stirring up.
>
> *Pattern 5* includes those whose reactions take a physical manifestation such as severe nausea and vomiting with hysterical paralysis. These need expert care.

The basic principle of psychological first aid is to establish effective human contacts with disturbed, overwhelmed persons who have lost touch to some degree with the world as it is.

The third responsibility of the nurse is to *note necessary information on the patient's tag.*

The nurse will be aided by the information which the first aider has written concerning this patient and she is able to institute further treatment without delay. The tag may serve as one of the means of communication in the "fractional care" or "three levels of treatment" which Dr. Derby outlined.

The fourth responsibilty is *to secure medical direction if available.*

Her fifth responsibility — *to arrange nursing care on a selective basis* — will be the most difficult for nurses to completely accept. They must, however, reconcile themselves to the emergency measure which is so very foreign to their philosophy and realize that immediate care is only for the most deserving cases. In her selection for nursing care and for evacuation, the first priority will go to patients with:

> hemorrhage, chest wounds, shock and burns, abdominal wounds, head and extremity injuries.

Dr. Derby stated that

> because of the overwhelming number of injured patients it is proposed that to do the greatest good for the greatest number we must ruthlessly exclude all hopeless cases on one hand and on the other, not waste time on the minor injured.

The objectives of the care of the injured are fundamentally the same for both the medical and nursing profession:

The saving of life
The preservation of function
The restoration of appearance
The promotion of early rehabilitation.

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These purposes are often difficult to attain and in times of disaster we will be more acutely aware of the added difficulties which will hinder their achievement. A disaster period will produce conditions of limited personnel, facilities and equipment and an increased number of casualties. These conditions make it imperative that nurses acquire some of the abilities outlined as necessary requisites of the military surgeon.

The nurse must "sacrifice her individuality and adhere rigidly to certain tried and proven basic principles which will do the greatest good for the greatest number," and yet "be flexible enough to modify safely as the situation demands." To provide for "the greatest good for the greatest number," because of the large numbers of casualties, will mean a deviation from the standard of nursing care which nurses are used to giving in hospitals during non-disaster periods.

> The more we deviate from an established routine, the more we are forced to assume individual responsibility for the efficiency of our service and the value of our help to the patient.

Every nurse realizes that mistakes are more easily made under conditions of improvisation. She may worry in anticipation or after a mistake in judgment or technique has been made. She may worry over her lack of knowledge concerning make-shift equipment. In short — the nurse is concerned over the compromises she must make in her established standards for nursing care. She may lose confidence and doubt her ability to perform. She must learn how to handle this doubt in order to carry on in an acceptable way under new situations. She should:

> have accurate information about the disaster situation and what is expected of her;
>
> realize that a very important sustaining factor is the relation of the nurse to her civil defence team. There is solidarity and a morale-building aspect in belonging to a group.

The sixth responsibility of nurses is *to direct and supervise auxiliary workers.* This group will include: nurses' aides, practical nurses, first aiders, home nurses, and also people with little or no first aid or nursing training.

This responsibility for leadership and guidance of other personnel in the Civil Defence Health Team demands of all nurses that they be extremely well informed about all treatments and nursing care which may be required by the various types of casualties expected in a disaster. It is believed

> we can presume that a large number of the traumatic cases will be of a minor nature and that the majority of the more serious cases will be open and closed wounds of the extremity, multiple wounds, wounds complicated by burns or irradiation syndrome, less frequently — open and closed wounds of the head, chest and abdomen.

Nurses themselves must have a thorough knowledge of: the management of shock, the treatment of fractures and the treatment of wounds, blast and crush injuries, before they can give calm, organized leadership and guidance to others.

SHOCK

Dr. Derby stated that "the recognition of the necessity for adequate, unhurried, organized resuscitation is a fundamental principle in the initial treatment of the war injured." It is imperative, then, that nurses understand this condition, recognize the signs and be able to assist in the management.

Shock is a condition of sudden depression of the nervous system. The mechanism is not really known, although it is assumed there is some form of capillary damage. The two theories — capillary leakage and hemodynamic — both agree that there is a decrease in the circulating blood flow.

The capillary leakage theory presupposes the loss of plasma through the damaged walls of the capillaries. However, shock may occur without detectable loss of plasma and may continue even after transfusion.

The hemodynamic theory maintains that blood stagnates in capillaries that are abnormally relaxed. There is no fluid loss but there is, in effect, a lessened flow of blood.

The decreased circulating blood flow in shock is accompanied by four other characteristics:

decreased rate of blood flow
decreased cardiac output
decreased blood pressure

tendency to acidosis — acid ions increased, basic ions decreased.

The state of shock is maintained and increased by severe pain, mental anxiety, exposure. There are two types:

Primary shock which follows immediately upon the injury.

Secondary shock which may not become evident until several hours after the injury.

The patient complains of dizziness (faintness), thirst, nausea with possible vomiting. He becomes listless, apathetic and possibly unconscious.

Treatment of shock is necessary to keep the person alive until the condition causing it is diagnosed and treatment has been instituted.

Warmth: Maintenance of normal body temperature, avoiding a build-up of excessive body heat. Warmth may be supplied by extra blankets and warm, sweetened drinks, if not contraindicated.

Analgesics: The administration of suitable drugs lessens pain, one of the factors in producing shock. They must be used with caution because of their masking effect.

The *administration of fluids* to restore the normal circulating blood volume. Blood is the best agent, except in the case of burns, but plasma or plasma-like fluids may be used. An intake-output chart must be kept with stress on accuracy. There is a danger of uremia because of impairment of renal function.

FRACTURES

The signs of a fracture are:

Abnormal mobility of the part, abnormal alignment of the limb, localized pain and numbness, protruding bone, inability to stand suggestive of a pelvic fracture, bleeding from ears or nose which suggests a fracture at the base of the skull, shock.

In the treatment of fractures support is provided the injured part until nature has had time to heal it and it is restored to its normal function. In emergency care the support or immobilization of the limb is by the use of the Thomas splint (if available), by improvising with long wooden splints or making use of the opposite leg (for lower extremities) and the trunk (for upper extremities). There should be adequate padding yet avoidance of any constriction. A large dressing placed over the wound of a compound fracture and held securely in position by bandaging will almost always control bleeding.

A fracture also produces injury to muscles surrounding the injured bone and to blood vessels and nerves in its vicinity. Nursing care stresses the prevention of further injury to tissue and bone by careful handling. All fractures of the lower extremities and those patients who are in shock must be stretcher cases.

In orthopedic work, rehabilitation begins the moment the person receives the injury. The desired alignment of the limb is obtained by the emergency splint and later by plaster casts, traction or braces. The nursing care involves special attention to the skin, especially areas of irritation or pressure. Cleansing and massage of accessible areas as well as adequate padding will prevent pressure sores. The importance of frequent inspection of the fracture dressing in the first 24 hours and at least three or four times daily thereafter, cannot be emphasized too strongly.

Radiation sickness may be present. During the 10-14 day latent period, with the limb in a permanent cast, every effort must be made to build up the patient's strength and resistance. This is one of the most important periods in the nursing care as these patients are faced with a long stretch of disability, complicated by a new type of sickness. They are in need of mental and spiritual help as well as physical care.

If radiation sickness is not a complication the patient must be encouraged to help himself in the activities of daily living which will allow him independence. The extent to which he may progress safely must be made clear through adequate teaching.

Special note should be made concerning the nursing care of fractures of the skull and vertebrae. A fracture of the skull is treated as a neurosurgical condition because the fracture in itself is of less importance than the injury to the brain which may be produced. There may be a considerable period of unconsciousness. The patient's pulse is feeble, respirations are shallow, skin is pale and cold, and the blood pressure and temperature are abnormal. The nurse must make regular and repeated notations of pulse rate, respiratory rate and rhythm, blood pressure and the state of consciousness. General nursing care emphasizes absolute mental and physical rest in a cool, quiet, darkened room. At any time during recovery the symptoms of increased intracranial hemorrhage may appear rapidly. These include:

> a rise in blood pressure, a fall in respiration and pulse, convulsive movements, increasing drowsiness, paralytic symptoms.

Fractures at the base of the skull present a danger of cranial complications and meningitis. Symptoms of this type of fracture are hemorrhage or the escape of cerebrospinal fluid from the nose, pharynx or ears. Blood may appear under the conjunctiva. The nasopharynx and external ear should be kept clean.

A fracture of the spine carries the risk of injury to the spinal cord. These fractures appear most commonly in the cervical and the lumbar regions. First aid care should avoid flexion, extension or torsion of the spine. The patient should be on his back in a cervical injury, the head should be immobilized to prevent permanent paralysis or acute respiratory failure through intercostal nerve involvement. In a fracture in the lumbar area, the patient is transported in the prone position.

The nursing care stresses attention to pressure areas such as the back of the head, shoulders, back, sacrum and heels. A small pillow is placed under the neck.

All extremities should be put through the normal range of motion at least once daily. Diversional activity is most essential as well as reassurance because the period of time an individual is thus incapacitated may be long.

TRAUMATIC EDEMA

Dr. Derby noted that lower nephron nephrosis or

> the problem of acute renal shut down is associated with any traumatic case where the injury was severe enough to produce extensive tissue damage and shock, sufficient to cause extended periods of hypotension . . . the use of a renal center, now accepted as a necessary part of the army in the field would be needed to a much greater degree in an atomic explosion where massive burns, crushing injuries, delayed surgery, prolonged and profound shock would of necessity result in an increasing number of cases of renal shut down.

Renal insufficiency implies that the kidneys are unable to accomplish their allotted task of removing from the blood the constituents of the normal urine within the proper time. The organic constituents — urea, creatinine, uric acid, hippuric acid, indican and acetone bodies, and the inorganic constituents, calcium, magnesium, phosphorus, potassium, and chloride accumulate in the blood and other tissue fluids. Lower nephron nephrosis may be referred to as hemoglobinuric nephrosis or "transfusion kidney." This condition is due to the insolubility of hemoglobin under condition of acidification and dehydration. The hemoglobin is precipitated in the lumen of the renal tubules, causing obstruction.

The hemoglobin, transported freely in the plasma, is filtered into the renal tubules where its concentration is increased in proportion to the amount of water that is reabsorbed by the tubular cells. Here also, the hemoglobin is exposed to an acid medium. The degree of the acidity of this medium depends on the amount of sodium that is removed from the glomerular filtrate. If the medium becomes sufficiently dehydrated and acidified, the solubility of this pigment is decreased to the point of precipitation. If this precipitation occurs in the tubule, the passage is occluded by an amorphous, insoluble mass. The function of the kidney is depressed, impaired or abolished, depending on the completeness of the blockage in the tubules. The condition is temporary for the lesion is confined to the tubules, which are capable of complete restoration. Factors which predispose to the development of this condition are:

> A high concentration of hemoglobin in the plasma
>
> Any factor which favors an increase in urine acidity
>
> Arterial hypotension or shock.

Shock increases the urine acidity and also favors maximum dehydration. These two factors result in the precipitation of hemoglobin with blockage of the tubules in the kidney. The realization of the risk of renal failure in wounded patients permits the institution of preventive measures and early treatment. This includes: the alleviation of the shock condition; giving alkaline fluids (if there are no signs of abdominal injury or other contraindications) in order to maintain the alkaline reserve, which is rapidly depleted by the accumulated acids that are not being excreted normally. If alkaline solutions are not available plain water should be given.

The average volume of urine excreted each 24 hours is between 500 and 3000 cc. depending on intake and loss from other body routes. If the amount is only 50 and 500 cc. the patient needs immediate medical attention. If this condition is not treated, anuria and uremia follow.

CHEST WOUNDS

Wounds of the chest must be considered extremely acute. These patients are given first priority for evacuation. The disturbance of respiration, the heart, or great vessels, produces shock and often death. However, if surgery has to be delayed many patients with chest wounds can be kept alive for an indefinite period by:

Adequate resuscitation, antibiotic coverage, repeated aspiration of a hemopneumothorax or application of an occulsion dressing over a sucking chest wound.

The patient with a chest wound will show signs of:

Shock, hemoptysis (may or may not be present), dyspnea, cyanosis.

Dyspnea and cyanosis will vary in degree according to the severity of the wound.

Subcutaneous emphysema — air escapes into subcutaneous tissue and muscles of chest wall.

The nursing care includes:

Watching the patient carefully for signs of additional hemorrhage and shock.

Preventing secondary diseases such as bronchitis, bronchopneumonia, lobar pneumonia, pleurisy.

There is risk in the application of heat. Heat will cause dilation of the peripheral vessels which may relatively decrease the circulating blood volume. The patient may go into or continue in shock.

ABDOMINAL WOUNDS

The immediate care and treatment includes:

Application of a simple massive dressing. The dressing will reduce the possibility of secondary infection and will aid in immobilizing damaged tissue.

Ensure an adequate airway.

Give nothing by mouth.

Ensure the comfort and warmth of the patient. Preventing chill does not mean overheating the patient, however.

Relieve pain and provide assurance. The security of well tucked in blankets does much to reassure the patient.

SUMMARY

In general — the principles underlying nursing care of surgical conditions does not change in times of disaster or non-disaster. The preoperative nursing care stresses:

1. *Psychological preparation:* The usual causes of an emotional reaction are fear and worry. *The most valuable facility at the disposal of the nurse is her opportunity and ability to listen.*

2. *Physical preparation:* Conditions which may make surgery a poor risk are dehydration and nutritional disturbances.

Postoperative nursing care stresses:

1. The utilization of a recovery ward.
2. The proper physiologic position. The principles of proper body alignment and good body mechanics.
3. The stressing of diet.
4. Exercise and early ambulation.

The future may present a situation where there is a sudden, unprecedented demand for treatments on such a scale that the need cannot be met adequately or ideally. The situation may demand adaptation of therapeutic methods to permit their use despite serious limitations in available equipment, accommodation, heat, light, power or general supplies. The nurse may have to perform procedures normally not in her province. She should be prepared to act in a capacity far beyond that to which she has been accustomed.

Casualties from Atomic Weapons - A Review

F. C. Pace, M.D.

For the purposes of this article, an atomic weapon is defined as a projectable device which converts nuclear energy into three forms — blast energy, heat and immediate radiation — and which also, under some conditions, distributes radioactive material over greater or less areas of countryside, as radioactive fallout. No distinction need be made between the terms atomic weapon and thermonuclear (or hydrogen) weapon, except that the latter yields more energy.

It is well known but worth repeating that atomic weapons differ from ordinary high explosive projectiles in only two particulars — they are much more powerful and they produce radioactive energy as well as blast and heat. It is well known, too, but perhaps not so commonly realized, that the immediate target and casualty effects of these weapons are due mainly to blast and heat and that radiation injury is, now, important only in relation to the delayed effects of fallout. Much of this paper will be given to a discussion of the effects of radiation from the fallout but it is necessary for a proper understanding of this particular aspect to review some of the general characteristics of these weapons.

Energy yields of atomic weapons

Two special units are used to measure and describe the force or energy of atomic explosion. They are the *kiloton* (KT), equal to the explosive energy of one thousand (1000) tons of high explosive, and the *megaton* (MT) equal to that of one million (1,000,000) tons. The first atomic weapons used against Japan were of about 20 KT energy-yield. Since then, a wide range has been developed, from one or two kilotons to several or many megatons. The low-yield weapons are probably designed for military use; those in the high kiloton and megaton ranges are for use against strategic targets, that is, cities.

Effects of blast

The explosion produces a shockwave in the air which, moving with great force and at about the speed of sound, damages or destroys buildings in the target area. Flying and falling debris is the direct cause of the traumatic injuries which are of the types to be expected — crush-injuries, fractures, bruises, lacerations and cuts from flying glass. At Hiroshima and Nagasaki about half the surviving casualties were of these types. Very few sustained injury directly from the blast — that is, ruptured eardrums, damage to hollow viscera.

The blast and other effects are measured from that point on the ground immediately under the centre of the explosion, called ground-zero (GZ). The degree of physical (structural) damage is, of course, greater near this point and less at a distance. For convenience, damage is described as follows:

A, complete demolition of structure;

B, damage so severe that buildings

TABLE I — BLAST DAMAGE

Yield	Radius (miles) from GZ of				Damage Area
	A - ring	B - ring	C - ring	D - ring	Within D - ring
1 KT	0.2 mi.	0.4 mi.	0.6 mi.	0.8 mi.	2 sq. mi.
20 "	0.5 "	1.0 "	1.5 "	2.0 "	12 " "
100 "	0.85 "	1.7 "	2.5 "	3.4 "	36 " "
5 MT	3.0 "	6.0 "	9.0 "	12.0 "	450 " "
10 "	4.0 "	8.0 "	12.0 "	16.0 "	750 " "

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cannot be repaired but must be torn down; C, damage to a degree sufficient to render buildings unusable until repaired; D, appreciable damage but not enough to make the buildings unusable.

For casualties, there will be many more deaths than injured within the A-ring and many injured survivors but fewer deaths between the C and D rings. That is, the number and proportion of survivors needing care for traumatic injuries will increase in rough proportion with distance from ground-zero.

The following table, if regarded as a guide only, is a useful description of the extent of blast damage to be expected from weapons of various yields.

Effects of heat

The most typical heat-effect of atomic weapons is flash-heat — that is, a wave of heat given off at the instant of explosion and for a short time afterwards. (The fires caused by the circumstances of the explosion are another source of heat-injury but this aspect will not be discussed here.) It is now accepted that 3 calories of heat per square centimetre of skin will cause a first degree burn and 10 calories one of third degree, if the heat is inflicted within a short time. The distances to which these intensities are delivered are set out in the following table.

TABLE II — RANGES OF HEAT-FLASH

Yield	3 Cal/cm^2 (superficial burn)	10 Cal/cm^2 (deep burn)	These values apply for visibilities
1 KT	0.4 mi.	0.3 mi.	6 miles and greater.
20 "	1.6 "	0.9 "	For visibilities
100 "	3.0 "	1.8 "	less than 20 miles
5 MT	16.0 mi.	10.0 mi.	these values will
10 "	21.0 "	14.0 "	be reduced.

Figures are for a surface burst weapon. In built-up areas shielding effects of buildings will reduce the distances given.

This table is not accurate for all conditions of atmosphere, height of burst etc., that govern the distance at which heat-flash is dangerous. However, it supplies a reasonably good picture of what can occur with these weapons. If opaque material is interposed between the heat-source and the person, the burning effect is reduced or nullified. Clothing gives much protection, particularly if it is light in color and loose fitting. White reflects much of the heat, and among the Japanese some very bizarre burn-patterns appeared on those who were wearing multicolored patterned clothes, the dark parts absorbing and transmitting the heat to the skin, the light protecting it. On the other hand the heat-flash in some cases set clothing alight and serious flame burns were produced.

Associated with the heat-flash is a blinding flash of light. Its brilliance is said to be "equal to that of several suns." Its effect is to cause temporary loss of vision due to exhaustion of the visual purple of the retina. Like the effects of flash-heat, this can be prevented and will not occur if a person is not looking toward the explosion or is in shadow.

Effects of immediate radiations

The immediate radiations arise from the detonating event and from the incandescent "ball of fire" which appears immediately afterwards. These radiations possess the following important characteristics: They are of short duration (about one minute or less), they are highly-penetrating, they cause the injury known as acute radiation sickness when absorbed in appreciable quantity. An "appreciable quantity" may be accepted as the equivalent of 300 roentgens delivered to the whole body; this quantity and mode of dose will produce serious radiation sickness in all persons so exposed and death in some. The probable effects of this and other doses are set out in the table on the next page.

It should be realized that the effects stated are *probable early effects*; the the lowest dose (30 roentgens units) is undesirably high and some late effects might be caused by it. However,

TABLE III

PROBABLE EFFECTS OF PENETRATING RADIATIONS

	Distance (miles) to which various doses (roentgen-equivalent units) are delivered.		
Yield	30 units	300 units	1000 units
1 KT	0.8 mi.	0.48 mi.	0.3 mi.
20 ”	1.2 ”	0.81 ”	0.65 ”
100 ”	1.5 ”	1.00 ”	0.9 ”
5 MT	2.6 ”	2.0 ”	1.8 ”
10 ”	2.9 ”	2.3 ”	2.0 ”
Probable early effects in man	None	All sick in 1 day: some dead in 1 month.	All sick immediately; all dead in 1 week - 1 month.

in a military or civil defence situation, we are chiefly concerned with ability to remain at work for the emergency period, that is, "operational efficiency" and less with long-term health hazards.

Comparing the distances to which blast and heat damage can reach, it is obvious that the more powerful the weapon the less extensive (*relatively*) is the range of the immediate radiations. And, because it is probable that weapons in the megaton range will be used against our cities, it is reasonable to assume that after atomic attack most of the surviving casualties will suffer from ordinary injuries and burns; few if any of those getting appreciable doses of *immediate radiation* will survive blast and heat because they will be within the A-ring and will be killed by multiple causes.

These notions, of course, are not correct if "small" weapons are used. For example, the yields of the atomic bombs dropped at Hiroshima and Nagasaki in 1945 were about 20 KT — one five-hundredth to one one-thousandth of the power of some present-day weapons — and in these two instances 10 to 15% of surviving casualties presented as their principle disability acute radiation sickness.

EFFECTS OF RADIOACTIVE FALLOUT

It remains to consider the injuries caused by the radioactive fallout. Fallout develops thus:

When an atomic weapon explodes one of the most striking of the phenomena is the formation of a "ball of fire." The fireball from the 20 KT Hiroshima weapon was about 600 feet in diameter; that of a megaton weapon may measure three miles. If the weapon bursts high in the air the fireball rises and expands and is soon dissipated by the winds, so that the radioactive material of which it is composed is dispersed and, for practical purposes, there is no fallout. If, however, the burst is low, so that the fireball touches the ground, the energy of the explosion causes cratering and pulverization of the ground-material and the heat vaporizes it. As the fireball rises it entrains or "sucks up" this material which becomes intimately mixed with the radioactive elements of the fireball. Continuing to rise, the fireball cools off and condenses; radioactive particles are formed which tend to fall. The particles are spread out by air currents as they descend so that wide ground-areas are contaminated and become dangerously radioactive. We must deal, then, with radioactive dust or dirt on the earth's surface. The hazard from this dirt is called the delayed or *residual* radiation hazard to distinguish it from the early or *immediate* hazard which occurs with the blast and heat of the explosion. The larger and heavier particles will return to the surface within 3 to 12 hours of the explosion. This "early fallout" is the phase with which we are concerned here and so we will only mention that very small particles (comprising about half the material) remain in the higher levels of the air for very long periods.

The heights to which the fireball rises before it is dispersed vary with the power of the weapon; in the case of a megaton weapon to 80,000 feet or more. From such a weapon, experimentally exploded in 1954, an area of the Pacific Ocean, oval in shape and of an area of 8,000 square miles, was contaminated to degrees lethal or damaging to man. We can see, then, why fallout from atomic weapons is so great a hazard. Multiple attacks would produce a serious threat to life and health over tens of thousands of square miles. Over the more densely inhabited areas of this continent, the high altitude air currents would more than likely distribute the radioactive dust in an easterly direction, and (by meteorological methods) its direction and extent can be forecast with fair probability.

From this widely distributed radioactive fallout two types of emanation are given off. The one is gamma radiation (also an important constituent of the immediate hazard) which is highly penetrating and which causes the acute radiation syndrome. The other type is much less penetrating. It is composed of "soft" rays (beta particles) and its main effect is to cause damage to the body surface, that is, skin burns. Further, if radioactive material is inhaled or ingested it is capable of producing serious effects. This danger is called the *internal hazard* to indicate that the source of the radiation lies within the organism and to distinguish it from the other hazard — the external hazard — already noted.

The gamma activity of the fallout decreases rather quickly with time. At seven hours after the explosion it is one-tenth of what it was at one hour; at two days, one one-hundredth and at two weeks, one one-thousandth. The gamma activity is commonly measured by an instrument called a surveymeter.* It records "dose rate," that is, roentgens per hour. If the reading on such a meter were 1000 roentgens per hour at one hour, then at seven hours it would be 100; at the end of two days, 10 and so on. These instruments and others are essential in controlling radiation exposures. In the Armed Services and Civil Defence they are handled by specially trained persons (radiation monitors) who are able to read the instruments and to interpret the results.

The beta activity of the fallout does not decay so rapidly. Further, it is difficult to estimate satisfactorily and none of the radiation-detection instruments developed for field use can record it accurately. Therefore, when we come to consider the quantities of radiation to which people are exposed and the effects of different levels of exposure, we limit ourselves to estimating the penetrating rays — that is, gamma radiation.

There is a definite association between the quantity of radiation to which an individual is exposed and the clinical reactions which follow. In military and civil defence operations, the most significant exposures are from external sources. The most important contributor to both is the penetrating gamma ray. Moreover, the whole body is exposed and not a limited part, and it is likely that the dose would be inflicted within a short space of time (one or two minutes to one or two days) in most cases. Therefore, the following estimates of probable dose-effects are for acute whole body radiation by gamma:

Acute dose	*Probable effect on humans*
50 R. or less	No immediate effects on exposed groups.
300 R.	All sick within a few hours: about 20% dead within a few weeks.
400-500 R.	All very sick within a few hours: 50% dead within a month.
500-600 R. or more.	Lethal to the majority.

The acute radiation syndrome will probably follow exposure to gamma radiation at levels of 200 to 300 roentgens whole body irradiation within a short time period. The initial cause of damage is not known but is probably a biochemical disturbance. Clinically, the illness occurs in three phases:

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*The radiation detection instruments ("radiac" instruments) which are most useful are three — radiation survey meters, contamination meters and dosemeters or dosimeters. Survey meters and contamination meters work on electronic principles. They are portable and are provided with needle dials which read in roentgens or milliroentgens per hour. A roentgen is simply a quantity of radiation. Knowing the time that has elapsed since the explosion it is possible to calculate from the dial reading the dose delivered before or after the time of reading, over any period of time.

Dosimeters work on several principles. They are small instruments designed to be worn like a pencil or a badge. They operate on several physical principles. They record *total dose*, not dose-rate as in the cases of the other two.

(1) An *initial* phase: On the day of exposure the patient presents nausea, vomiting and weakness. This phase lasts one or two days and is followed by

(2) An *asymptomatic* phase: The patient recovers his sense of well-being: he may be active and the only findings are alterations in the differential white cell count. This second phase may last as long as a week; then there appears

(3) A phase of *disabling illness*: It begins with rising temperature, anorexia, diarrhea and weakness. A hemorrhagic tendency develops (epistaxis, melena, hematuria externally; petechial or gross bleeding internally). The gums, mouth and throat structures become painful and ulcerated; there is often sudden hair loss (epilation), chiefly of the scalp, and a purpuric rash appears. If blood studies can be made, it will be found that the leukocytes are much reduced, the platelet count is very low and the erythrocytes are diminished in number. Generalized infection occurs early and pneumonia may develop through bacterial invasion of the lungs. The patient may recover slowly from this phase or he may die between the second and twelfth weeks of anemia, infections of various sorts, malnutrition or sheer weakness.

The outstanding pathological features are three: cell-death, hemorrhage and infection:

(1) *Cell death* (necrosis): This process involves mainly the cells of the blood-forming organs in the marrow, the circulating cells in the blood, the mucous membrane of the gut, lymphoid tissue of spleen and lymph glands. In general, tissue cells which by their nature are rapidly replaced are more radiosensitive than others: one finds little evidence of damage to the cells of the brain, nerves and muscles.

(2) *Hemorrhage*: The precise causes of the bleeding are unknown. There appears to be capillary damage and interference with clotting mechanisms. The blood loss produces secondary anemia. Moreover, because of damage to the bone-marrow, the lost cells are not replaced. Thus there occur both primary (aplastic) and secondary types of anemia.

(3) *Infection*: This is a prominent feature. The microorganisms may first reach the general circulation through the damaged bowel mucosa or from other internal sources but it is likely that external infections of many kinds will threaten these cases. The immediate cause is, of course, radiation damage to the leukocytes and other defensive mechanisms. Pneumonia was found to be quite common in the Japanese after radiation exposure at Hiroshima and Nagasaki in 1945.

Diagnosis of radiation sickness may become the responsibility of the nurse under war-time circumstances and so it is useful for her to know the probable and diagnostic findings. The findings that would indicate *probable* exposure of serious degree are:

(1) A history of nausea and vomiting on the day of exposure to possible radiation

(2) Sore mouth

(3) Hemorrhage

Clinical findings of greater certainty are also three in number:

(1) Reasonable proof of significant exposure (which involves use and interpretation of radiation detection instruments)

(2) Sudden loss of hair

(3) The purpuric rash

CROSS-STRESS

The coexistence of radiation injury with traumatic or thermal effects is called cross-stress. It materially worsens the outlook for recovery; a burn, for instance, of limited extent in a patient whose radiation-exposure alone would cause little concern, may cause death from the double injury. It seems probable, too, that radiation-exposure combined with surgical procedures is reason for poor prognosis. The nurse and her assistants must be very alert to observe and report traumatic and thermal cases who, for no obvious reason, simply cease to do well. Such patients should be re-evaluated with the probability in mind of additional stress by radiation.

PROGNOSIS

Apart from cross-stress, a poor outlook is associated with high dosages of radiation, severe vomiting, a short asymptomatic phase and a history of exhaustion, exposure or fatigue. The chance of recovery is better when the dose is low, when initial symptoms have been mild and the asymptomatic period relatively long. Laboratory aids both in prognosis and diagnosis could be useful if time and facilities permitted; the total and differential white cell counts are valuable guides. Among Japanese victims it was found that survival was not common when the white count fell below 1000 per cu. mm.

TREATMENT

There is no specific treatment for the acute radiation syndrome. If vomiting has been severe, fluids and electrolytes should be replaced by the simplest possible means. Rest, warmth and maintenance of nutrition and fluid balance are necessary. Infection may be anticipated by the early exhibition of antibiotics (depot penicillin, broad-spectrum antibiotics) and if it appears it should be treated vigorously. If burns or wounds are present great care must be taken to avoid introducing additional infection. Strict oral hygiene is indicated but (because the mucosa may be damaged) the gentlest means must be employed. Secondary anemia may call for transfusion. The hemorrhagic tendency is probably responsive to transfusions of fresh whole blood; however, the greatest economy in the use of blood is demanded in a mass disaster and transfusions may have to be strictly controlled.

Many experimental approaches to treatment have been made. One that seems promising (in animals) is the use of bone-marrow implants or extracts but it is too early to comment on its usefulness in clinical medicine.

Good general nursing care will do more for these patients than any single treatment.

SKIN LESIONS

Skin injury following direct contact with radioactive material has been known for decades. After the experimental detonation of a multi-megaton device in the Marshall Islands during the spring of 1954 radioactive fallout came down on several inhabited atolls. Nearly 300 people (natives of the islands, American servicemen and the crew of a Japanese fishing vessel) were contaminated. The observations on these cases are the basis of the following remarks and, indeed, of much of our knowledge of the effects of weapon fallout.

> Those who received higher doses of gamma radiation and who showed definite evidence of radiation sickness also developed burns at an earlier time and more commonly than persons who got less penetrating radiation and were not so ill. Burns began to develop between the twelfth to fourteenth days in the more seriously affected groups. Many authorities consider that the skin damage could have been prevented by early and adequate cleansing — that is, that the burns were due to direct contact between radioactive material and skin. They presented no unusual features and responded to conservative treatment. The unclothed parts of the body were affected, particularly the scalp where the fallout material was held by the hair. (The oily hairdressing used by Marshallese natives probably caused the dirt to adhere longer and more closely.)

PREVENTION OF RADIATION INJURIES

The only satisfactory method of controlling injury, both by highly penetrating and less penetrating rays, is *prevention*. One of the principal aims of evacuation planning is to move populations into areas where meteorological prediction indicates that fallout is least likely to occur. These areas, we have seen, are "upwind" to target cities, that is, usually to the west in North America. If fallout occurs in an occupied area, complete protection against skin burns can be attained by simply going indoors; the less penetrating rays are easily stopped by the roofs and walls of houses.

The highly penetrating gamma rays are, of course, less easily shielded off. Inside an ordinary house the dose rate is about half that in the open; in an ordinary basement, one-tenth. In a deep shelter with earth head cover two or three feet in thickness the dose rate is reduced to insignificant levels. A deep basement prepared for occupancy, with food, water and sanitary facilities, is termed a *refuge*. For planning purposes it is assumed that such refuges will have to be occupied for about two days while the activity of heavy fallout is falling off sufficiently to allow reasonably safe crossing of contaminated areas.

> If contamination of the person occurs, cleansing is required. The ideal method is to remove all clothing, to shower and wash with copious supplies of water, detergent and soft wash-cloths and (after resurvey with a radiation instrument) to don fresh clothes. In washing, particular attention must be paid to hair, nails and body folds. However, it is not likely that the circumstances of mass disaster will permit any elaborate procedures and most contaminated persons can reduce the hazard quite satisfactorily by removing outer clothing (including ordinary shoes, which collect dust), washing scalp, face, neck and hands with water and ordinary detergent, and replacing outer clothing. The contamination on the discarded clothing, if dry, can be reduced by brushing; all such clothing should be put aside under circumstances of safety until natural radioactive decay has reduced the hazard to acceptable levels. At the present time Civil Defence Health Services are developing simple drills for decontamination; meanwhile, the governing principles are stated.

A special point worth noting is the recommended use of detergent, *not* soap. Soap can form sticky and insoluble compounds with some of the fallout elements and some authorities believe that rinsing with plain water is a better procedure than washing with soap.

A further point is that women should take care to cover the hair if fallout is threatening. A head cover like an operating room cap or some such improvisation, would serve well enough and would abolish the need for prolonged washing.

Those who deal with contaminated casualties must take certain steps to protect themselves from secondary contamination and must work closely with radiation monitors. Attendants should wear gloves of material which can be washed readily or discarded; a dust mask (improvised or otherwise) is useful against the risk of inhaling radioactive dirt; a dosimeter must be worn and read at suitable intervals, to control exposure to penetrating rays; personal cleansing at the end of a tour of duty is essential. It is doubtful if special clothing will be provided; indeed, it is probably not necessary, but changes of clothing must be available to medical, nursing and other personnel who deal with casualties of this kind.

While detailed plans have not been worked out, a few words should be said in regard to the principles which will govern management of contaminated patients. If contamination is suspected the patient should be surveyed by a radiation monitor. If a potentially hazardous contamination is found, clothing should be removed and the body surface gently washed with detergent suds. Many texts speak of "vigorous repeated scrubbing" with brushes. This is undesirable because any but gentle cleansing methods may drive the radioactive poisons through the skin, and, for the same reason, repeated cleansing is contraindicated. If any contamination remains after two washings, it is best to leave it on the surface rather than to risk driving it in.

THE INTERNAL RADIATION HAZARD

The experience with the Marshall Island natives and others indicates that for periods up to two days, the inhalation and ingestion of radioactive material from fallout is unlikely to be a serious matter. However, this is only an indication based on a single incident. Except under very special circumstances, ingestion of contaminated food and water will probably be the chief cause of radioactive poisoning. Once radioactive poisons have gained access to the body they are hard to remove — particularly, radioactive strontium which is the most dangerous in this respect. Therefore, treatment again is mainly preventive. The first requirement is to determine whether or not food and drink are contaminated to any serious degree. This is accomplished by radiation-monitoring. If contamination is present, the best method, particularly with water, is to seek an alternate source. However, low degrees of contamination are not dangerous over limited periods, so acceptable levels have been set as guides for health authorities. Water from covered sources — deep wells, artesian wells, domestic tanks or covered cisterns — if not contaminated in transit, would be radiologically safe in emergency.

For food, the best method is simply to keep the dirt off. Tinned food is safe, since the containers can be washed before opening, and tinned milk is desirable for infant feeding. Animals exposed to fallout are safe, if they are not suffering from radiation injury, if special care is taken in butchering and if the muscle (red meat) only is eaten. Eggs, milk and bone, which may concentrate strontium taken up in the animal's diet, are best not used though this may prove an unnecessary precaution as better quantitative studies become available.

It is obvious that management of food and water after atomic attack is a major health problem and a proper subject for special study. It is enough, in our present state of knowledge, that the nurse realize the existence of such hazards and apply her native common sense to situations that may arise.

SUMMARY

Atomic weapons now exist in a wide range of yields, from 1 or 2 kilotons' energy to several or many megatons! The products of any atomic explosion are four; blast-energy, heat-flash, including a dazzling light-flash, immediate radiation and residual radiation as a widely distributed dust. High yield weapons are those most likely to be used against North American cities and, for planning purposes, the yield is taken at 5 MT. With weapons in these higher energy ranges, the extent of the immediate radiation is much less than those of blast and heat. Therefore, persons receiving damaging doses of immediate radiation will likely be dead of several causes and most of the surviving casualties will present traumatic or thermal lesions.

The radioactive fallout occurs when the weapon is burst close to the ground. No fallout of significance to civil defence nor to the military occurs with a high aerial burst. Fallout from a single high yield weapon may contaminate hundreds of square miles of territory.

The radiation effects are due to two types of emanation: (1) highly penetrating rays constituting the whole of the immediate radiation hazard and part of the residual hazard and (2) less penetrating rays from the fallout. The highly penetrating rays, in appreciable dosage, cause the acute radiation syndrome, the less penetrating rays produce skin burns. Thus a person exposed to fallout can present both types of injury.

A dose of 450 roentgens to the whole body within a short period of time will probably cause 50% deaths from acute radiation sickness in a population so exposed. Greater doses cause earlier and more marked effects, smaller doses, less grave and less immediate. It is likely that 50 to 75 roentgens will not interfere with operational efficiency. Radiation burns are most likely to occur when fallout material remains in close contact with the skin surface.

The acute radiation syndrome will follow exposures of 200-300 roentgens or less. It is tri-phasic illness, with early nausea, vomiting and weakness, a second asymptomatic phase passing into a third period of grave disturbances. The outstanding pathological processes are three; necrosis, hemorrhage and infection. Suggestive findings are a history of nausea and vomiting on the day of exposure, sore mouth and a generalized hemmorhagic tendency. More certain are reasonable (instrumental) proof of serious radiation exposure, purpura and epilation. The coexistence of burns or ordinary injury with radiation damage reduces prospects of recovery very materially; this phenomenon is termed *cross-stress*.

There is no specific treatment, either for acute radiation syndrome or the skin burns. The nurse must realize the importance of close observation, meticulous bedside care and prevention of further infection and she must be prepared to accept a diagnostic responsibility for those in her charge.

Acknowledgment. The tables were prepared by Dr. E. E. Massey, Civil Defence Section, Defence Research Board.

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Nursing Care of Radiation Sickness

Adelaide Haggart, M.A.

The nursing of patients who have been exposed to total radiation is unfamiliar to all of us. We have had patients who have received therapeutic doses of radiation and have shown varying degrees of reaction to the treatment. Now we are confronted with a problem of never having seen what we are expected to be able to plan for and to teach others the essential care of such patients.

Those of us who survive an atomic blast will be expected to do our utmost to help others to survive. No matter what our personal loss, it is a part of our mental discipline to rise above our own grief and accept the responsibility for which we have been trained. We shall be expected to organize and to direct the nursing care for the casualties. This implies that nurses have been trained to assume leadership and have developed the ability to inspire confidence in both patients and co-workers.

In order to give intelligent nursing care to patients suffering from radiation sickness, nurses should:

1. Have knowledge of the effects of ionizing radiation on the body and its manifestations
2. Know the aims of the physician in his plan of treatment for each patient
3. Be able to plan the necessary nursing care to meet the needs of the patient within limits of the existing personnel

The reasons for the various manifestations of radiation sickness are not clear but hypotheses have been put forth and considerable experimental work has been and is being performed.

Ionizing radiation directly damages all living cells through which it passes. It may inhibit growth, produce injuries in the cell chromosomes or kill the cell outright. In large enough doses, radiation is lethal, but in moderate doses, although death may follow eventually, only certain special sensitive cells are damaged and certain effects have been observed regularly. They are listed in order of sensitivity, their significance is indicated, and a nurse should know these facts and realize their importance.

1. Lympathic tissue is affected first. There is an almost immediate decrease of white blood cells to a minimum, then regeneration sets in in a matter of one to two weeks. Toxic products are released, affecting various tissues and resistance to any infection will be low.
2. Bone marrow is affected and the production of red blood cells ceases. The body has to exist on the cells present at the time of radiation. Recovery is very slow — perhaps a year — so that weakness and anemia are noticeable by the third week.
3. Blood loses its ability to clot about the second week due to toxic substances of a heparin-like nature. This will allow easy bruising, the development of petechiae and hemorrhage.
4. In the epithelium of the gastrointestinal tract a fragility of the capillaries develops causing small hemorrhages which show as fresh blood in diarrhea, hematemesis, etc. Inflammation and ulcer-

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ation of the mouth and throat occur early in severe cases; in less severe instances this is noticed about the third week. Thus, anemia will be increased by loss of blood from this tract, abetted by difficulty in taking food and in poor absorption.

5. Reproductive tissues are affected but so far this has been no cause for alarm as sterility is transient.

6. The skin about the hair follicles is affected and loss of hair especially of the scalp, is common. However, it grows in again with the original color and texture in four to six months.

There are four phases of radiation sickness — shock reaction, the latent period, infection and hemorrhage, convalescence.

The severity of the symptoms and the rapidity with which they develop depend on the amount of radiation received. The earlier symptoms appear and the more pronounced they are, the graver is the prognosis.

The shock period lasts 24 to 48 hours. Severe shock lasting over one to two hours indicates a grave prognosis. The patient may show signs of nausea, vomiting, malaise and diarrhea.

The latent period lasts from several days to two weeks — usually three to ten days. The patient generally feels well and may be up. Then symptoms reappear. Those in attendance should be watchful for signs and symptoms such as anorexia, nausea, vomiting, sores in the mouth, sore throat, loose stools with blood in them. There may be a rise in temperature. Later there may be gross ulceration of the mouth and pharynx, petechial areas over the body, hemorrhage, epilation and increasing weakness. This is the period of hemorrhage and infection. Death may follow in three to six weeks in the severe cases.

Damaged tissue can be repaired and the question of survival depends not only on the amount of initial destruction but also on the speed at which regeneration takes place. Unirradiated tissue can destroy or neutralize the effects of toxic material.

Supportive measures for the patient suffering from radiation sickness are:

Rest and nursing care
Maintenance of fluid and electrolyte balance
Adequate nutrition
Control of infection
Control of hemorrhage
Treatment of anemia

An immediate appraisal should be made of the patient's condition. The medical officer will want a report based upon careful observation. The patient may have other complicating injuries which receive priority over radiation sickness. With respect to the latter, there will have to be an estimate of the severity of the exposure (done by instrument reading), knowledge of where the patient was in relation to the centre of the explosion and the amount of shielding he may have had. This information will determine which patients receive priority in treatment.

The nurse has to be on the watch for evidence of fear and other emotional reactions. These are seen as a tense, anxious expression, extreme apathy and regression of behavior patterns. The causes of the reaction are an awareness of personal danger, a narrow escape from death, sustaining an injury or seeing a member of the family or a close friend killed. Signs of emotional distress first reveal themselves close to the time of the explosion and last briefly. The nurse should, by her manner and speech, pass on that subtle something — call it reassurance, if you will — whereby the patient knows that he is in capable hands and will be cared for. A cheerful disposition and a confident manner, which stem from knowing what to do and how to do it, will help relieve the tension in both patients and co-workers. The very efficient, highly organized nurse may lack the touch of human kindness that is so essential at such a time.

Both nurses and doctors cannot be too careful of their speech and facial expressions before patients — whether the patients be unconscious, in shock or any serious condition. Who knows how much an unconscious patient takes in as far as speech is concerned? All too often these days some forget this essential detail and unfavorable remarks might result in the patient not putting forth "the will to live," which is so essential to recovery.

The nurse must look for signs of shock which may range from weakness to complete prostration. These can be recognized by the patient's appearance —apprehension, anxiety, color, temperature of skin, rapid feeble pulse, a drop in blood pressure. The patient should be placed in a recumbent position, kept warm, watched as to pulse and blood pressure, and intake and output measured. Intake will depend on kidney function which in turn is dependent upon the blood pressure and should be the guide for giving fluids. When possible, fluids should be given by mouth. Since fruit juices have a high potassium content, they are best withheld until the kidneys are functioning satisfactorily in order not to further upset the electrolyte balance or "drown" the patient.

Nausea and vomiting may be evidence of irradiation or of emotional trauma. These symptoms appear in about 60 per cent of persons with radiation sickness. Such casualties should be kept at rest, warm, and encouraged to take fluids by mouth. The safest fluids probably are water and tea, with sugar added if the patient can tolerate it. However, both for shock and vomiting, intravenous fluids may have to be given. In an emergency, nurses may have to give these. Helpful drugs such as gravol may be ordered.

The nurse must be on the alert to observe and record, whenever possible, the time and the severity of any symptoms. The treatment of the patient by the medical officer depends to a high degree on the intelligent cooperation of the nurse and the recording of pertinent data.

Rest is important to maintain resistance. Even when exposure to radiation is not certain, patients should remain quiet and not resume work directly after possible exposure. Rest is essential in the latent period to augment the repair process. The more severe the symptoms, the more rest is required. It is advisable for all patients with gastrointestinal symptoms to be in bed at least two weeks.

Food is also very necessary to maintain resistance. The diet should be bland from the beginning, if possible, because of the damaged mucous membranes. It should be high in calories and contain adequate amounts of the vitamins associated with repair of tissues. Fat and protein content is low as they are not tolerated well. The protein content is increased as the patient can tolerate it. If he is vomiting or unable to take food by mouth, intravenous fluids have to be given to try to bring fluid content and electrolytes back to normal levels. The nurse must realize that she is responsible for the food and fluids given and be sure that they are free from contamination before the patients receive them. It is very important that as close an approximation as possible of intake and output be recorded. When lesions develop in the mouth, many patients will require considerable persuasion if they are to take sufficient nourishment.

In the early period, attempts will probably be made to control infection, especially in the burned and wounded, by use of antibiotics. Everything should be done to assist healing before radiation effects begin to appear.

Good skin care is essential. Some patients will have to be turned routinely to prevent pressure sores. Oral hygiene is particularly important because ulceration of the buccal mucous membranes develops so frequently and infection here would be an easy matter. Patients who develop upper respiratory infections should be segregated. This is important for the white blood cell count of all irradiated casualties is low in the first few weeks.

The nurse may have to supervise decontamination of patients whose clothing, skin surfaces and hair have been soiled by radioactive material, that is, patients who have been caught in the fallout. This must be done in cooperation with radiation monitors. The principles are outlined more fully in Dr. Pace's article.

The patient who has developed radiation sickness and is free of gross radioactive contamination is not "radioactive." This must be pointed out to lay workers who can easily confuse the situation of radioactive contamination with the sickness that follows over-exposure. This same principle applies to those who develop skin lesions; when the dirt has been removed there is no risk of damage to those persons attending the patient.

The early management of radioactive sickness demands fundamental nursing care with which we are all familiar. To summarize briefly, the patient must be kept warm and fatigue avoided. In shock, fluid intake is related to output. Dehydration and electrolyte imbalance are cared for by giving fluids by mouth as far as possible. Intake and output should be watched closely. We must be conscious of emotional trauma and on the alert for emotional reactions. In the third phase nurses must watch for all signs of later radiation effects. One has to keep in mind symptoms of hemorrhage. The patient should be handled very gently to minimize bruising and bleeding because of lack of clotting power and fragility of blood vessels. All the nursing measures performed earlier must be continued.

Some people recover from emotional trauma much sooner than others. Again, problems develop because information concerning family and friends cannot be obtained, because of enforced inactivity and the upset of one's accustomed pattern of living. We must be aware of these factors and try to spot difficulties if we are going to try to preserve mental health.

In all our dealings with patients, no matter how close our observations, we must not excite apprehension. We must do our best to arouse a sense of security and trust in us so that the patient feels that he is being cared for adequately. We should not build false hopes, but from the first contact with the patient, we should seek his cooperation so that he will accept treatments which are deemed necessary for his recovery. During convalescence, this is most important. Perhaps what the patient often needs is an opportunity to express his fears and hopes and for us to lend an attentive ear.

Realizing that an atomic blast is limited to a prescribed area and taking into consideration the vastness of our country, nurses cannot evade their responsibility of playing their roles in the event of such a major disaster. If such occurs, every available nurse will rise to meet the challenge of supplying physical and emotional help to unfortunate mankind with understanding, courage and confidence.

Definitive Treatment of Burns in Mass Casualties

F. M. Woolhouse, M.D., F.R.C.S. (C)

Large numbers of thermal burns have been sustained simultaneously in several instances in recent years, for example, in the Cocoanut Grove fire in Boston and in St. John's, Newfoundland, and Texas City. They were regarded as major disasters and placed incredible strains on civilian hospital facilities. In effect, they were trivial compared with the vast numbers of burns that may be anticipated from an atomic explosion.

Multiple injuries will be sustained in the event of such a disaster but burns will exceed all other forms of trauma. Advance planning is mandatory though varying circumstances such as site of explosion, season of the year, available supplies and function of casualty services make flexibility an important criterion of any plan. It is estimated that each surviving physician will have 100 to 500 burn patients under his care and consequently the treatment must be standardized so far as possible. This standardization is bound to compromise somewhat the ideal treatment of the individual patient.

A great deal has been written on the systemic treatment of the burned patient. This knowledge is widespread and well understood. In general terms, systemic treatment must include adequate colloid and electrolyte replacement to combat shock, administration of antibiotics in high dosage, early tracheotomy for laryngeal burns, the use of blood to combat late anemia, and the maintenance of a high calorie, high

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Dr. Woolhouse is a Montreal surgeon who has specialized in restorative skin grafting. The article is reprinted, with permission from the *Canadian Medical Association Journal*, March 1957.

protein, and high vitamin diet. The definitive care of the burn wound, however, deserves more detailed consideration and here again a plan is required which will have been modified from orthodox burn therapy to accommodate volume.

It is recommended that the initial treatment of the patient be confined to the prevention and treatment of shock. The local care of the major burn wounds may be deferred until the patient reaches a hospital unit. There, remnants of clothing are removed and, time permitting, the burn is cleaned with a detergent, loose skin is cut away, and the area sluiced with normal saline or sterile water. Blisters are not deliberately broken. On the other hand, those covered with a thin epidermal shell which will obviously soon rupture are best debrided.

A large percentage of the burns will be of face and hands only. The face should be treated by exposure, the hands by occlusive dressings, and the patient sent home to the care of the family. The universal hand splint is particularly useful as a quick, effective method of dressing burned hands. After cleansing, Vaseline gauze is applied, followed by dry gauze between the fingers and dressings pads. The splint is applied to the hand and the whole is wrapped with bias bandage. This keeps the hand at rest in the position of function. The universal hand splint in its present form is too wide to pass down a coat sleeve. It can be made smaller by trimming three-eighths of an inch (0.95 cm.) from each side at its widest part. The properties of the splint are unchanged, and such a narrowed form could easily be stored in readiness.

It seems certain that there will not be time, personnel, or adequate standard burn dressings to use the closed method of treatment for all burns. The loss of heat in our severe winter climate has been cited as a contraindication to exposure. It is likely that even in a hastily converted building some form of heat could be improvised. Face, trunk and perineal burns are ideal for exposure. These patients should be laid on a surgically clean sheet which is frequently changed. An interposition sheet of thin polyethylene is cheap and disposable, and prevents saturation of the mattress by exudate.

Consideration would be given to the immediate excision and grafting of localized burns in which one is certain of full-thickness skin loss. This procedure is useful for areas other than the hands. With the number of burns anticipated in a disaster, one would not have the organized facilities to utilize this procedure to any great degree.

Where occlusive dressings are employed, they are left intact for 10 days unless fever, odor, pain, saturation or displacement warrants an earlier change. By this time the superficial second-degree burn has healed and the remainder is deep second or third degree (full-thickness skin loss).

After the dressing change, and at the latest by the 14th day after injury, it is imperative to remove the burn eschar surgically. The bed must be prepared to receive the graft before infection can become well established. The latter, together with the negative nitrogen balance, debilitates the patient rapidly and makes the survival of grafts uncertain. Debridement of the burn is carried out under anesthesia with forceps, scalpel, scissors and the Brown electric dermatome. Wherever there has been sufficient physiological separation of the burn eschar, it can usually be removed by simple trimming with forceps and scissors. There is often a definite line of demarcation between living and dead tissue which makes possible the removal of burned skin with very little blood loss. Forceps and scissors alone are used on the hands, and the debridement is very conservative so that no tissue that might survive is removed. On the arms, trunk, and legs large areas of adherent burn eschar can be removed rapidly with the Brown electric dermatome. The blade is set at its wide open position for the operation. Blood loss is considerable and one should have 1500 cc. in readiness, to be administered during the operation. Attempts to remove the burn eschar from a large area, e.g. back, using forceps and scalpel would be slow and would result in an uneven surface. Removal can be accomplished with the electric dermatome in minutes with less sacrifice of unburned tissue, leaving an even surface.

Regardless of the previous method

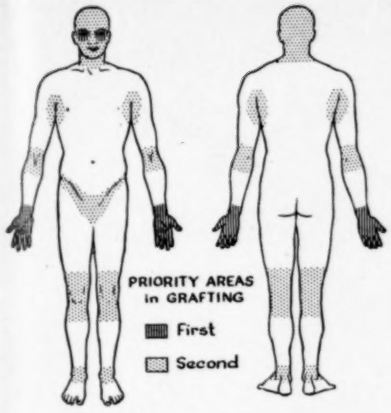


Fig. 1.—Priority areas in grafting.

in use — exposure or closed — all burns are dressed after debridement. Hemorrhage is arrested by the application of warm sponges, and a dressing of gauze soaked in saline or dilute hypochlorite solution (Dakin's, Hygeol) is applied, followed by pads and flannel bandage. These dressings are left intact for three to four days and then removed. There may be dead tissue present at this dressing so that further debridement is necessary. This will be more common when the surgical excision has been carried out earlier than the 14th day after burning, when the line between living and dead tissue is not so apparent. If necessary, a second debridement is done and the patient's burn is dressed again. Where removal of tissue has been complete, a four-day interval is sufficient time for the formation of a good bed of granulation tissue which is ideal for skin grafting.

The 16th to 18th days after burning should be set as a deadline by which, barring complications, grafting should be started. There are areas of the body with definite priority as far as skin cover is concerned (Fig. 1). The eyelids and hands are to receive top priority. After these, the flexion creases should be grafted in order to prevent or reduce late burn contracture. The elbow and knee are prone to develop severe contracture and it is important to graft these areas as soon as possible (Fig. 2).

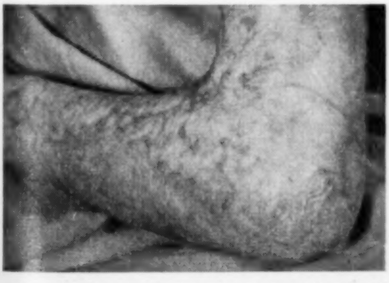
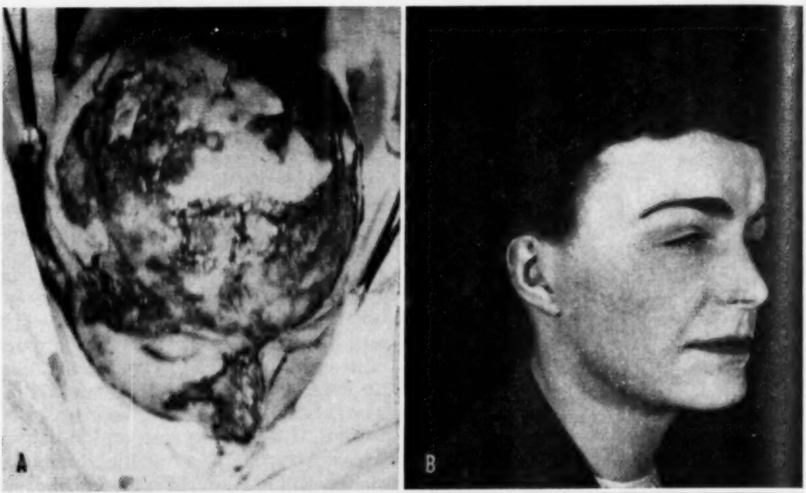


Fig. 2.—Severe elbow contracture which might have been reduced by early priority grafting.

The two most useful instruments to obtain skin are the Padgett dermatome and the Brown electric dermatome. The addition of the electric dermatome to burn therapy has been lifesaving. The machine takes large amounts of very thin skin with ease and rapidity. The only preparation of the donor site is the application of a thin film of lubricant. Skin is taken with a thickness of 8/1000 of an inch. The electric dermatome has limited use over the abdomen and in very thin people over bony prominences. The Padgett is the instrument of choice on the abdomen and buttocks. The electric dermatome can be used over the thorax when the intercostal depressions are elevated to rib level with subcutaneous saline. The donor sites may be exposed or dressed with flannel bandage impregnated with a mixture of scarlet red dye and castor oil. The dressings are removed in eight days and electric dermatome sites may be used again in 10 days.

Secondarily infected burns may require wet dressings of dilute hypochlorite (Dakin 1:8 or 1:12) four times daily to absorb the exudate and obtain a clean granulating surface. This surface, when ready, requires no further preparation. The skin is laid on in transverse strips which parallel the creases of flexor surfaces. No sutures are used. The skin is trimmed roughly to size but overlapping is permitted. The grafted area is then dressed with a Vaseline gauze such as Jelonet, gauze, pads and flannel bandages.

Homografting is necessary in some patients as a lifesaving measure. The condition of the patient may dictate the use of homografts alone, whereas in other circumstances the combination of autograft and homograft skin would be preferable. In this latter case the grafts are best used as alternating



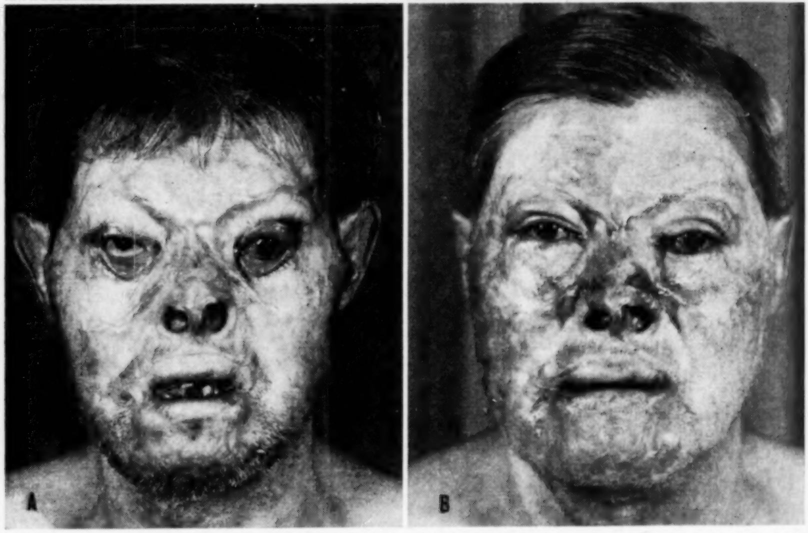


Fig. 3.—Expeditious resurfacing of a burn with minimal secondary procedures. Fig. 4.—A. Inevitable contractures are present. Bilateral ectropion could have been prevented by early priority grafting of lids. B. Postoperative photograph.

horizontal strips of homograft and the patient's own skin. In this way it is hoped that spreading epithelium from the autograft will largely fill the gap by the time the homograft has been rejected. The source of the homografts may be living donors or cadavers. The grafts are taken with the electric dermatome.

The dressing is not changed on the grafted area until three days after operation. By this time the graft has a vascular and fibrin attachment which is strong enough to hold it in place while an overlying dressing is carefully removed. Any graft which is not adherent at this time probably will not take and is best debrided. Daily dressings of Jelonet and gauze soaked in saline or dilute hypochlorite (Dakin 1:8 or 1:12) are begun.

Patches of granulation tissue protrude between the grafts and in places where the graft failed to take. Patches larger than 3 cm. in diameter may require subsequent grafting. Those

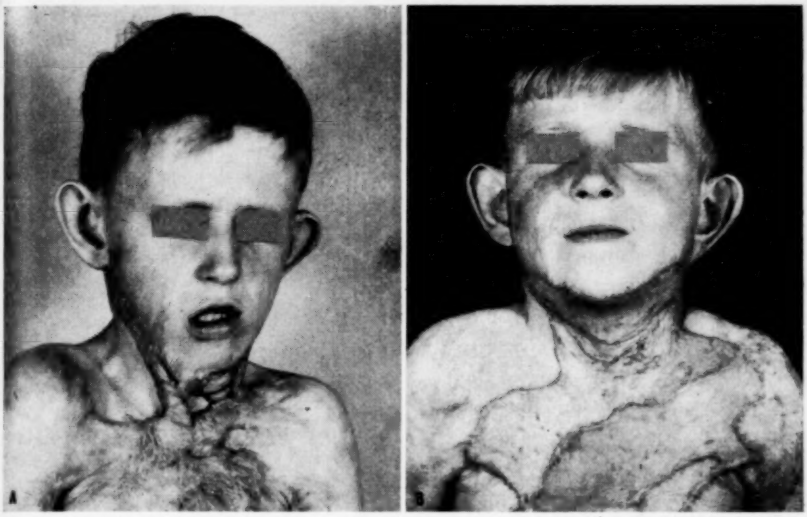


Fig. 5.—Neck contractures (A) prior to grafting and (B) following excision and application of thick split skin graft.

smaller than 3 cm. are usually allowed to epithelialize from the periphery. When the patient has only small granulating areas remaining, 1 cm. or less in diameter, he may be sent home. A daily tub bath is prescribed. The granulations are exposed or dressed with gauze and a topical ointment is applied. A combination of neomycin, polymyxin B, and bacitracin is highly bacteriostatic and convenient to use.

Contractures are inevitable. They may be reduced or in some superficial burns prevented by early grafting and placing grafts parallel to skin flexion creases. When contractures occur, reconstruction may be started four to six months after burning. At the elbow and knee transverse incisions to allow the release of the contracture followed by split skin graft in the defect are useful. The Z-plasty procedure is most effective in axillary contractures. Here one often finds a band of scar tissue in the anterior or posterior fold of the axilla which is thin and taut. It can be readily excised and length obtained with a good-sized Z. Severe scarring of the neck is best treated by complete excision of skin, platysma and any contracted fascia and the application of the thick split graft.

We wish to thank Queen Mary Veterans Hospital, Montreal, for Fig. 1, 4, 5 and 6, the Montreal General Hospital for Fig. 2, and Christie Street Hospital, Toronto, for Fig. 3.

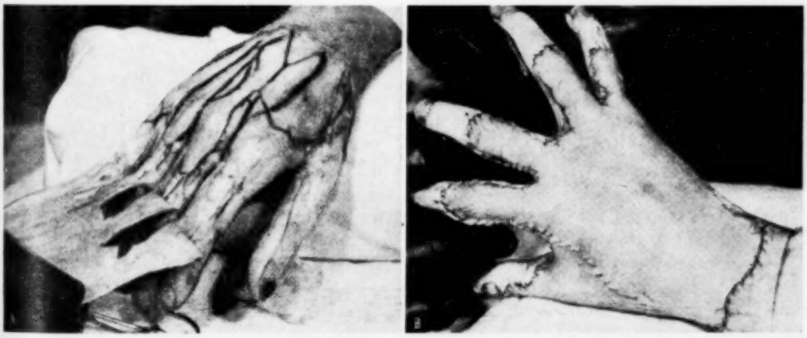


Fig. 6.—A. Method of removal of unstable scar from dorsum of hand. B. Resurfacing with split skin graft interpositioned into bases of fingers to prevent subsequent webbing.

Physiotherapy is a useful adjunct in the postoperative period.

Circumstances may necessitate modification of the foregoing plan. It is felt that adherence to the above outline will minimize severe complications, prolonged morbidity and complicated reconstructive procedures. In time of disaster, with medical services already overburdened, any reduction in the above factors will be of immeasurable importance.

Nursing Care of Thermal Injuries

Sister M. Virginia

THE TRADITIONAL ROLE of the nurse as a friend and counsellor, as well as a skilled technician, is dramatically illustrated when disaster strikes. Whether these victims are suffering from actual illness, separation from their families, fear, loss of property or from other emotional stress, they turn to the nurse for comfort.

Disaster nursing demands adaptability of skills to chaotic conditions with lack of equipment and lack of facilities. A nurse who is able to give care under normal conditions, in a completely equipped hospital, faces a far different situation in disaster where she may be required to set up a box in a corner of a shelter with improvised facilities for sterilizing instruments. She may have to work without medical direction for varying periods of time, and will have to depend upon her own judgment.

In the nursing care of thermal injuries, the early treatment of seriously burned individuals is extremely important. The nurse should know what not to do as well as what to do. Lives have been lost by a mistaken underestimation of the extent and degree of a burn. The importance of diagnosing this correctly lies wholly in the fact that only thus can the magnitude of the problems facing the patient be appreciated. The "Rule of 9" is a convenient measure for determining the extent of the burn.

Each arm is considered	9%	of	body	surface.
head	9%	"	"	"
front of trunk	18%	"	"	"
back of trunk	18%	"	"	"
Each leg	18%	"	"	"
pubis	1%	"	"	"

Burns of the face, hands and genitalia are known to produce a greater degree of shock, in relation to the surface area burned, than any other area of similar size on the body. It is well to note especially the extent to which these areas are involved.

Burns are classified as follows:

First degree — reddening of the skin only.

Second degree — the burn extends through the skin to the subcutaneous layer.

Third degree — complete involvement of muscles, nerves and vessels.

We must also remember that the patient may be suffering from thermal injuries of the respiratory tract, resulting from inhalation of hot air, hot particles and noxious gases. The severity of this injury is assessed by the state of consciousness of the victim, the extent and degree of head and chest burns, the environment in which the burn occurred, the material causing the burn, and the products of combustion (of which carbon monoxide is the most important). The symptoms depend upon the extent and degree of the respiratory involvement. Where there is a mild injury to the upper respiratory passages, there may be only sore throat and hoarseness. In severe cases, laryngeal edema progresses rapidly to complete obstruction.

Thermal injuries occurring in disasters are often associated with lacerations, crush injuries or fractures, which are sometimes more serious than the burn. Blast injuries producing rup-

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tured viscera and/or hemorrhage, should also be kept in mind. Ordinarily the chief dangers from burns are *shock* and *infection.*

The levels of casualty service are:

1. *Disaster area* — First aid only is administered.
2. *Advanced Treatment Centre* — where the injured may be held for 24 hours and where doctors, nurses, first aiders, etc., provide first treatment.
3. *Improvised Hospitals* — in most of which the set-up will allow only simple determinations to be made.

DISASTER AREA

In the disaster area the first aiders will be equipped to give drugs for the relief of pain and to apply dressings. A patient with a small burn (under 10%) may be left without special dressings. If the burned area is extensive, the patient can be placed in a large burn dressing, and clothing loosened but not removed. If the patient is unable to walk, transportation will be available. Burn cases will receive first priority for evacuation.

ADVANCED TREATMENT CENTRE

This will probably be the nurse's first contact with the patient suffering from thermal injuries. The primary aim in the whole plan for treating casualties is to *prevent* rather than alleviate emotional disturbances. The following four points are of utmost importance and provide a basic summary and guide:

1. Adopt a calm, confident manner that will lend assurance to those who have been injured, and to others.
2. Teach those who care for patients to move deliberately, speak confidently, and offer reassurance.
3. Recognize early stage hysteria and put these people to work unless activity is definitely contraindicated.
4. Have every able person assigned to some definite task or responsibility.

The immediate treatment and care is to reassure the patient and to combat shock, the symptoms of which may be incoherent speech, coldness, clamminess, extreme thirst and rapid heart beat. The plasma and electrolyte loss must be replaced to relieve hemoconcentration. Intravenous therapy must be started immediately. Since it is unlikely that blood will be available, the following may be used in order of preference — plasma, reconstituted serum, dextran 6% in saline, and normal saline. This measure should be continued until the patient has rallied satisfactorily before further treatment is commenced. If the patient can take oral fluids, a solution of one quart of water with a level teaspoon of salt and half a level teaspoon of bicarbonate of soda, may be given to maintain the acid-base balance. Should this solution not be available, water orally would be indicated.

The amount of parenteral fluid that should be administered will depend upon the severity of the burn and the patient's response to intravenous therapy. Extensive burns often interfere with the determination of blood pressure. The nurse must rely upon the patient's pulse, general appearance and urinary output to indicate the depth of shock and his response to therapy. All fluids that a patient receives should be correctly recorded on his identification card. One of the well recognized plans of fluid therapy is as follows: 1 cc. fluid/1% burn/24 hours/per kilogram of body weight. Half of this volume may be given in the first eight hours, the remainder in the following 16 hours. In the second 24 hours, approximately ½-¾ of the total volume of the first 24 hours may be given. Intravenous fluid administered as above in a severe burn should contain equal parts of plasma and saline. The importance of a very accurate intake and output record for severely burned patients cannot be overestimated.

In such an emergency make a quick physical examination of the patient to estimate his weight and to determine and chart the extent of the burn. Apply an occlusive dressing when available, and on it mark the burned area with a red pencil or lipstick. After these initial measures of combatting shock have been started, remove the remained of the clothing.

If antibiotics are ordered, they frequently cannot be given orally because of the vomiting produced by the shocked state. If it is deemed advisable, patient with less than 15% burns (except the aged or very young) may be allowed up and should be encouraged to assist in the removal of the other patients to improvised hospitals.

IMPROVISED AND EXISTING HOSPITALS

Patients will arrive at the emergency hospital within 24-48 hours. The general condition of the patient is the first consideration. Here fluid intake and output are important. Those with over 25% burns will have a retention catheter ordered. The urine volume excreted hourly will serve for many days as a guide to the adequacy of the blood volume maintenance, and may give an index of the renal damage done. The appearance of blood in the urine should be watched for since it is a bad prognostic sign and indicates the onset of renal failure. While alert to this danger, one would not alter the therapy as long as the kidneys respond normally to parenterally administered fluids.

During and after the third 24 hours, the patient should be watched for a sudden increase in urinary output — for example from 25 cc. an hour to 150 cc. an hour. If it occurs, a sharp decrease may be observed in the amount of fluid needed to maintain a good urine output. This is a favorable prognostic sign. If the patient's urine output fails to respond to large intravenous infusions, greater caution must then be observed in giving fluids, either by mouth or by intravenous therapy. He cannot excrete fluids adequately, and pulmonary edema may be produced. In the presence of renal failure, salt is restricted and fluid is given only to replace losses through the lungs, skin and urine. The hazard of pulmonary edema is greatly increased in patients with airway burns and intrathoracic injuries.

From the fifth to the 15th day, the patient needs good nursing care and effective surgical care based on an understanding of his disordered metabolism. If his urinary function is good, if the daily nutritional intake is soon restored to high levels (ideally about 3500 calories, 450 gm. of carbohydrates and 250 gm. of protein), if an adequate hematocrit is maintained despite the persistent tendency toward anemia, and if invasive infection is avoided by good technique and correct antibiotic therapy, his condition will improve rapidly and his burns will soon be ready for sharp debridement and grafting.

In a disaster it is unlikely that Stryker frames or burn beds will be available. Since the patient is not being cared for on a frame, greater caution must be observed in turning him, to prevent scraping his wounds when the sheets are removed. These patients usually prefer to turn themselves, if at all possible. They seem to accomplish it with less pain, although it may take longer.

Strict asepsis must be used in caring for the burned areas which are treated like any other wound. Preferably, cleansing is done only at the time for grafting. Visitors suffering from upper respiratory conditions are banned, because of the burned patient's susceptibility to infections. The patient should be protected from drafts and chilling. This is sometimes a problem, since exposure of the burned area is necessary. By keeping the doors closed and the air in the room warm, he can be kept reasonably comfortable and free from respiratory complications. Because pain contributes to shock and restlessness, sedation is administered when necessary. The nurse must always be on the alert for early signs of a developing infection such as restlessness, pain, foul odor and elevated temperature. In doing the dressings, the nurse should observe the extremities for coldness, pallor, cyanosis or loss of pulse.

Positions of comfort are important to rest. Severely burned patients must spend many weeks in bed and frequent changes of position will make it easier for the patient to relax and rest. General body cleanliness is essential to aid elimination from the skin. After bowel or bladder elimination, the areas must be given special attention to prevent deposits of urea crystals or fecal material from forming on the burns. The patient should be encouraged to move about in bed as much as possible. This lessens the danger of emboli formation, and prevents his joints from becoming stiff. Deep breathing exercises should be encouraged and supervised at frequent intervals.

If the patient has suffered from face and neck burns, he should be observed constantly for respiratory complications, because these burns usually involve the air passages. If available, a tracheotomy set should be at the bedside at all times. If the early signs of difficulty develop — coughing, wheezing and dyspnea — the doctor must be notified immediately. The mucous membranes of the respiratory tree react to injury and irritation with edema, which, if not controlled immediately, will result in death from asphyxiation. The nurse should remember that burns of the hand are often associated with burns of the face because a person instinctively raises his hands to his face to protect his eyes. Therefore the finger nails will be of little value in indicating cyanosis.

Victims of respiratory tract burns require good and frequent attention to oral hygiene. During the first few days when they are unable to retain fluids, their lips become dry and cracked, and their mouths dry and foul. A moist piece of gauze placed over the mouth will give some relief, if it is necessary for the patient to breath through the mouth. The condition of the mouth will greatly influence the appetite for the food required to repair and promote the growth of new cells and tissues. The nurse must use her ingenuity in trying to make food and fluids more appetizing. Since protein is needed for tissue repair, emphasis should be placed in this direction. The patient's nutritive requirements are greatly increased for a long time after he is burned. Skimmed milk preparations are an excellent and economical source of protein. It is advisable to have frequent small high protein feedings between meals.

When a nurse understands the physiological effects that result from burns, she can explain more effectively to the patient the need for careful attention to urinary output, the importance of infusions and oral fluids and the reasons for frequent blood tests. When the patient understands the reason for treatments and procedures, he is more willing to cooperate. A severely burned patient will appreciate the nurse's understanding sympathy in helping him with the emotional problems that invariably accompany scarring. She should be kind, encouraging, and above all, endowed with the ability to be a good listener.

Here is a challenge and an opportunity for fulfillment of the highest ideals of the nursing profession. In order to inspire confidence in others, the nurse herself must be prepared, physically and emotionally, to think clearly, act quickly, and adapt herself to any situation. She must have faith, hope and compassion. These qualities add immeasurably to the nurse's professional stature at any bedside. In time of disaster they will make her very presence a lamp lighted in the darkness.

Disorders of the thyroid affect many more females than males. In a survey made a number of years ago, the prevalence of these conditions in females was 8 times that in males at ages 20-34, 5½ times that among males at ages 35-64.

Goiter continues to be most prevalent in the areas bordering on the Great Lakes and in certain mountainous areas. This geographic concentration apparently reflects the lack of sufficient iodine in the water supplies and in the soil. In recent decades, the availability of sea foods rich in iodine and the use of iodized salt have lowered the frequency of goiter among residents of those regions. However, it still occurs more frequently there than in other parts of the country. In contrast, thyroid cancer has no characteristic geographic pattern.

Recent clinical studies show a good prognosis for thyroid diseases. Radioactive iodine has been used in the treatment of hyperthyroidism and has proved very effective in some types of cases. Good results are being obtained by surgery in thyroid cancer.

— *Metropolitan Life Insurance Company*

Nursing Sisters' Association

Miss Isabel Kemp was re-elected president of the Winnipeg unit with Mrs. G. MacEachern as vice pres., Mrs. S. Alcock, treas., Mrs. W. Forbes, rec. sec. The annual dinner was held early in the year at the St. Regis hotel. Gifts were presented to Mrs. L. R. Rabson, Mrs. D. H. Slemmon and Mrs. B. W. Finger in appreciation of their efforts during their term of office. The activities of the unit during 1956 were reviewed and included a smorgasbord held in conjunction with the CNA biennial and attended by 150 nursing sisters representing 16 units.

The Public Health Nurse Looks at Civil Defence

Mildred I. Walker, M.A.

A public health nurse's observations will be based on her knowledge of this field plus her professional experiences. These observations may be based on two points:

1. What disaster planning means to public health nursing.
2. The specific contributions of the public health nurse to the total civil defence program.

Civil disaster public health planning is a very important aspect of civil defence. It requires representation from and coordination of effort by the personnel of medical, nursing, pharmaceutical services and such ancillary services as dentistry, sanitary engineering, and veterinary medicine. All will work together to produce preparedness for disaster — natural or provoked. The public health nurse has her special role. The success of this role is related to the efforts of the individual nurse.

The Public Health Nurse

She is a professional nurse who renders public health service to the individual, the family and the community. The service includes the interpretation of healthful living through medical, nursing, sanitary and social procedures for the promotion of positive health. This may require the correction of ill-health such as physical defects, the prevention of disease and meeting the need for skilled nursing care of the sick in their homes.

The public health nurse assists the family to attain and maintain self-dependence through healthful living. Any issue which challenges the health and well-being of an individual, and/or the family as a unit, is the concern of health personnel. Civil disaster and civil defence can disturb family and community well-being. Thus civil defence comes within the range of health planning for the community and nation.

The occupational health nurse applies "nursing and public health procedures for the purpose of conserving, promoting and restoring the health of individuals and groups through their places of employment."* The occupational health nurse gives service to the gainfully employed members of the family. Good health services at work help to insure greater security in relation to family income and to increase the morale of the employee. This in turn is reflected in a more healthful family life.

The public health nurse in the community and the occupational health nurse in industry coordinate their services to meet the health needs of the total family unit.

The contribution of the public health nurse to civil defence is considered under: information, preparation and action. Add to these food and sleep — two simple but essential morale-building ingredients at the time of a disaster. The latter require recognition and planning because there will be a danger of neglecting these important factors under pressure. It will be a part of the responsibility of the health personnel to see that food and sleep needs are respected.

Information

The art and skill of communication (the "know-how" of getting her message across) enter into all aspects of public health nursing. This makes the public health nurse truly an information officer. The success of her program depends upon her own convictions regarding health plus her skill in selling her ideas to the people she serves. The same skill could be applied to help educate families and communities in disaster planning where leadership is given by civil defence personnel.

The public health nurse knows the

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*Brown, Mary Louise, R.N., M.A., *Occupational Health Nursing*, Springer Publishing Company, N.Y., 1956, p.262.

families and the community, their customs and mores. Around these she builds her health education program. In her visits from home to home she is a salesman for healthful living. She is a realist in that she is carrying her product to the people where she adapts her scientific knowledge to the family in its own environment. Gradually over the years the health practices of our people have improved so that the life span has been lengthened. This has brought a new challenge — the older age group or those persons with a lengthened life span. Much credit for the effectiveness of health practices should be given to the large number of well-qualified public health nurses, who daily touch the personal lives of Canadians, at home, at school and at work.

In the fulfilment of her objective of public health education the nurse is an idealist because her aim is positive health. It is difficult to measure the results of such a program. In comparison, the occupational health nurse's program is subject to the industry's actuarial processes of measuring the value of health services to employees along with all other costs in balancing the company's ledger. Generalized public health nursing in the community has many variables, while health services in an industry are given within a fairly controlled situation. We know that health work in the community pays, but it is difficult to measure the degree of effectiveness in, for example, the prevention of crippling diseases. The public health nurse in the generalized program can measure the efficiency of her services to some extent but it is over a long period of time.

Public opinion: The public health nurse is accepted generally throughout our communities, indicating that she has made a place for herself in family health guidance. She fulfills the essentials in moulding public opinion:

(a) personal interest — her instruction is within the experience of the individual so that he can see it in relation to himself; (b) familiarity and trust — the people know her since her service spans the life cycle — prenatal, infant, preschool, school, adult life; (c) action — through her home visits, clinic services, nursing care in the home and in industry, she indicates she is ready to do something about health services.

The public health nurse then, could indicate how public opinion might be moulded in her community to accept programs for preparation against the effects of civil disaster.

The public health nurse belongs to the community. She studies the social structure of the community she serves. Her program is planned around the social structure and the topographical factors. She knows the natural barriers — the rivers, the hills, the mountains; the climate; the accessibility of the roads — the short-cuts, the good roads, the bad roads, the travel bottle-necks; the isolated areas, the congested areas; and the peculiarities of travel — from Cadillac to ox team.

The public health nurse is familiar with the public health facilities, the schools, the churches, the public administration buildings, the location of industries, the methods of work, and the income of the families. She knows the quality of health of the people and the exposure to and acceptance of health practices; the reactions to small and large emergencies in the home or in the community (family and community solidarity), the level of education and acceptance of public responsibility. All this information the public health nurse can give to civil defence planners.

Communications: The public health nurse in her daily rounds is close to radio, television, or telephone facilities. These modern instruments of communication pipe information into the homes and into the nurse's car regularly, and could be a means of developing an awareness of civil defence. The nurse knows that because of these modern methods of communications, people now have a higher level of education and information. They do not scare as easily as they did when they were more isolated. She also learned many years ago that in getting across her message of disease prevention, people resist the "scare" method.

Because communities are different, the planning should be on a policy-making level, or "in principle." These "principles" could be used as a guide and adapted to the structure of each community.

PREPARATION

The public health nurse is a professional nurse with special preparation for leadership in health services. The service-load of the occupational health nurse and the Victorian Order nurse, is apportioned differently to that of the nurse in a traditional public health program. As well as carrying out a health education program, these nurses provide nursing care for occupational and non-occupational accidents and illnesses. This is compatible with the total health service, because it assists in rehabilitation and achievement of self-dependence and healthful living. It is all a part of the total public health program. Public health nurses have a very wide range of services which could be adapted to the civil defence program.

In the event of a disaster these nurses would know their communities and how to reach certain sections if the roads were cut off. They would know where families were located. In industry the nurse has a natural setting for emergency care. Nurses are being requested by employees to give them instruction in first aid, not for certification, but because they wish to be of more value in case of a large emergency. The nurses say that the first aid instruction that they were given in the undergraduate course, has prepared them to meet these requests. This observation should persuade nurse educators with a very heavy teaching load, that the first aid instruction should be continued and even enlarged.

ACTION

Many public health nurses have been active in civil defence programs in Canada. With their broad knowledge of the community, and their success in moulding public opinion toward better health programs, the public health nurses have much to contribute in pointing up means toward greater acceptance of civil defence planning.

SUMMARY

What does disaster planning mean to the public health nurse? Any issue that challenges the health and well-being of an individual and/or the family as a unit is the concern of health personnel.

The public health nurse's contribution includes:

(a) She is an information officer. She interprets and promotes healthful living; influences public opinion through her health services.

(b) She knows the people, the families, the community, the customs, mores, topographical factors, the barriers and gateways to communications.

(c) She is an idealist. Health is a long-term program, and the goal is distant, sometimes a lifetime. It takes faith to wait for results in the health education of the community she serves. She promotes positive health.

(d) She is a realist. She knows that she must plan in principle, and then apply these principles realistically so that her program will be accepted by the community she serves.

(e) She knows how to communicate in this modern age. People have a higher rate of information through modern devices of communication. The health personnel compete with the sales techniques of the modern business world. The salesmanship of the public health nurse must be up-to-date to continue to mould public opinion for healthful living.

Plastic hospital sheeting that is completely waterproof, odorless, longer-lasting than rubber, and light in weight, is now available. It can be boiled without damage; has better resistance than rubber to the effects of alcohol, perspiration, blood and urine. It remains smooth and pliable under wide temperature variations, does not become gummy after long use, is non-allergic and does not "rustle" if used as a pillow covering. It provides a very practical way to preserve sheets, pillows and mattress. It is an excellent covering for moist dressings and wet packs.

— Busse Hospital Products Co., New York.

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No matter how small the sum of your worldly goods you can still afford the luxury of helping others.

Psychological and Social Aspects of Community Disasters[*]

J. S. Tyhurst, M.D.

CHANGES IN THE ROLE of the nurse have been accelerating in recent years and have been the object of study by various observers[3, 10, 15, 18, 28, 29, 30, 34, 44]. Two very characteristic areas of change can be identified — first, the increasing responsibility of the nurse for techniques and functions that have in the past been the responsibility of a physician; and second, increased emphasis upon technical nursing activities at the expense of the manual, more direct bedside services to patients. While many observers may deplore the second trend, there is little likelihood that the first trend — the delegation of more and more medical duties to the nurse — is likely to diminish, let alone reverse itself. Furthermore, the activities of the nurse are being extended to a number of different social and institutional settings besides the hospital, such as industry, schools, welfare settings, community agencies, home care and community organizations.

In community disaster even greater responsibility falls to the nurse, for then the nurse must play a key role,[25, 31]. It will be to the nurse that a very large share of the burden during the emergency will fall — and with the shortage of physicians that is bound to occur, the nurse will have to fill many additional functions usually performed by doctors.

This paper is concerned with the social and psychological aspects of emergency situations. One of the basic problems of disaster is how people behave. The behavior of people and their psychological management will be a fundamental issue upon which the success of all other issues will depend. Behind all the various technical activities carried out by nurses in disaster are the people who carry out the activities. Also, besides the physical injuries suffered by survivors are the psychological disorders of various types and varying degrees of severity. Therefore, knowledge of people in disaster, how they behave and what can be done to help them, is essential to all nursing personnel. This paper is directed to nurses in the belief that they, even more than physicians, will play a central role in the early management of psychological distress in disaster.

The literature on this aspect of emergency situations has until fairly recently been based either upon experience in war[16, 23] or upon the reporting of unplanned involvement in some natural catastrophe. In the last several years, there has been a rapid increase in planned research and systematic review and investigation[8, 21, 22, 24, 27, 37, 39, 40, 41]. These findings have in turn been applied to the problems of medical planning in civil defence and civilian disaster[1, 7, 11, 12, 17, 43, 45]. The material in this paper is based both upon this literature and also, more particularly, upon field studies carried out by the author, over several years in Canada.

The plan of the paper is to provide a descriptive outline of the natural history of individual and social reactions to disaster in the belief that knowledge of these basic patterns of response is essential for understanding and rational action before and during any disaster.

It is so often implied that because disaster situations seem to present many unique circumstances there is little point in trying to plan for management in advance. Many of the experiences in disaster are so charged with intense and subjective personal feeling that the main impression one gets is of this uniqueness and unpredictability. However, the task has been to search for the general and characteristic patterns of psychological response to disaster, to describe them, and from these descriptions to draw such concrete recommendations as will provide a basis for action from one emergency to the next.

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[*] From the Department of Psychiatry, McGill University, Montreal. The field studies upon which this paper is based were supported by grants from the Defence Research Board, Ottawa.

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INDIVIDUAL REACTIONS

Turning first to individual reactions in disaster, it is possible to describe a consistent pattern which consists of three overlapping phases: (a) a *period of impact,* (b) a *period of recoil,* and (c) a *post-traumatic period.* Each of the three periods may be characterized according to stress; time duration; and psychological and social phenomena. This conception has been described elsewhere but the main features should be recapitulated here[39].

Stress. (a) The first period of impact is characterized by the presence and effect of initial stresses and continues until these stresses are no longer operating upon the individual or group. It is the period of maximal and direct effect of the disaster.

(b) the period of recoil is characterized by a suspension of initial stresses, and thus begins when the individual has succeeded in avoiding their direct effect for the moment at least, by one manoeuver or another, such as escape. Some stresses may continue during this period (e.g., cold, injuries incurred during the first period, etc.) but from a psychological point of view, and relatively in terms of intensity and type, the stresses are suspended during this period.*

(c) The stresses of the post-traumatic period are derivatives of those of the initial period of impact and are more obviously "social" in nature. This is the period during which first full awareness is possible of what the disaster has "meant" in terms of loss of home, belongings, financial security, and particularly of bereavements. It begins after the security from initial stress has been first fully established, and when the individual comes to face once again the matter of daily living but in an environment altered in one or several crucial aspects (bereavements, loss of home, office or possessions.)

Time: With regard to *duration,* (a) the period of impact may vary within fairly wide margins. However, for acute catastrophe it may last for only three to five minutes, to one hour. The period of impact in the case of a marine fire was about three to six minutes; in the case of a flood, about half to one and a half hours. (b) The time duration of the period of recoil also varies, but to a smaller extent apart from abnormal reactions, being determined more by individual differences than by the nature of the stresses, lasting from several hours to a day or two. (c) The post-traumatic period lasts, hypothetically at least, for the remainder of the person's life, and includes the period of rehabilitation.

Psychological Phenomena: The following is a summary of the main trends observed.

(a) *During the period of impact,* reactions separate into three main groups. One group of about 12-25% of survivors are what might be described as "cool and collected" during the acute situation. They are able to retain their awareness, make an "appreciation" of the situation, formulate some plan of action, and carry it through. A second group, representing what might be called the "normal" reaction to the period of impact and making up about three-quarters of the survivors, are stunned and bewildered. Most of the readers of this paper would probably fall into this group. They show certain characteristics during this period that are of great importance for understanding their behavior: a definite restriction of the field of attention; lack of awareness of any subjective feeling or emotion although manifesting the physiological concomitants of fear;

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*Further stresses may be of such a type and severity as to impose a prolongation of the first period of impact; or put in another way, as to produce a second impact immediately following the first, and thereby postponing the period of recoil for varying periods of time. In this discussion, however, the progression following an acute stress is described, and the progression in the event of prolonged or repeated stresses will be developed from this.

and automatic or reflex behavior. The last group, of about 10-25% show manifestly inappropriate responses — states of confusion, paralyzing anxiety, inability to move out of bed, "hysterical" crying or screaming, and so on.*

(b) *During the period of recoil,* the majority of survivors are seeking shelter, sitting in or pacing about hotel lobbies, moving into the homes of friends or relatives, driving in taxicabs or ambulances, obtaining temporary shelter or care, or giving an account of their experiences for the first time. During this period there is a gradual return of self-consciousness and awareness of the immediate past. Subsequent recall is more complete for this period, but still not absolutely so. It is the period during which, for the majority, the first overt emotional expression occurs, and during which they first experience a subjective awareness of feeling or emotion — anxiety, fear, anger. During the period of recoil, the majority of survivors achieve their first awareness of what they have just passed through — and the disaster first achieves this limited perspective. There is a need to talk or "ventilate" during this period, to get angry at someone or to express oneself in some way. The need to ventilate is associated with a childlike attitude of dependency, which is an essential ingredient of this phase. Dependency may be precipitated in previously uncommunicative and unresponsive survivors by any genuine act of reassurance or aid on the part of people dealing with them. They want to be given something — coffee or a blanket — or to be looked after, and the importance of the giving and nursing appears not so much related to the actual kind of aid, as to the psychological meaning of being cared for. When one talks to survivors some time afterward, they describe those attitudes with some amusement, at the same time stressing the real and compulsive character of their needs during the earlier phase. In most, the period of dependency is transitory and even a day or two later, the survivor may be quite unwilling to talk as freely as he had earlier. His manner is again fairly independent and he may be quite unwilling to accept help even though he needs it badly.

This is only a brief outline, but the present impression is that *the period of recoil* represents a most important part of this pattern of response to disaster. Both the character of individual responses during this period and their management by nursing personnel engaged in rescue and relief would appear to have a crucial significance for subsequent psychological events.

(c) The reactions of *the post-traumatic period* are closer to those phenomena with which psychiatrists are familiar and which are described in the literature as post-traumatic reactions. They include temporary anxiety and fatigue states, psychotic episodes, recurrent catastrophic dreaming, depressive reactions, and so on. The more severe and prolonged reactions that are included in the general terms "traumatic syndrome" or "post-traumatic neuroses" become apparent during this period.

Emotional Reactions and Psychiatric Casualties: From this brief description, it can be seen that most people will show signs of psychological and emotional disturbance immediately following a disaster. The majority of such reactions will be transitory, recovering spontaneously or responding quickly to rest and sympathetic management, and they should be considered normal. There will be a number of more severe and persistent reactions — the psychiatric casualties — but it is not expected that these will increase very greatly as long as they are treated right away, close to the scene. The appearance of psychological disturbance in some way may be delayed, masked or obscured by physical injury. Many physical complaints — nausea, dyspepsia, gastric upset, headaches, and so on — will be the outcome of emotional disturbances rather than physical disease, and may become persistent if not recognized and treated appropriately.

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*The psychological phenomena of this period of impact as described have an important bearing upon other developments, both during this period and subsequently. These include the evolution of hostility and its attendant scapegoating, the dynamics of initiative and leadership, the dynamics of guilt as may develop subsequently, and the function of group dynamics with respect to the individual. Because of limitations of space, these considerations have been omitted from this outline.

Social Consequences

Turning next to the social consequences of disaster, it is useful to refer to two periods — the first during and immediately after the catastrophe itself, and the second, coming also at and shortly after the disaster, but continuing during the period of recovery.

The immediate effect of any catastrophe, during the period of impact, is upon the patterns of social interaction upon which all of us depend. These patterns range from intimate and subtle relationships through to institutionalized and more formal patterns of expectation and response which are increasingly important as the size of the community increases. Members of families and close friends are separated, and at the same time the function of various social institutions and social roles — utilities, medicine, hospitals, communication, police, transportation, welfare — may be impaired or destroyed. The social "fragmentation" is immediate and extensive. Numbers of individuals are suddenly, and possibly without warning, transported from the familiar to the unfamiliar, are threatened and disoriented.

Besides general bewilderment and confusion, the possible consequences initially are mass reactions such as "panic" or mass exodus, or general, agitated, random and purposeless hyperactivity.

Wholesale "panic" of the more lurid variety has not been a common finding at the level of cities and larger communities in disasters, particularly where some prior planning exists. Evidence from Halifax[33], Hambourg[41], Hiroshima, and Nagasaki[19, 40], indicates that although some immediate and large scale exodus may develop, more typical is momentary escape, return and unorganized activity.

These considerations apply to the situation at the time of, and just after the disaster. Further developments immediately following these are of equal importance and may be characterized as follows:

1. *Social paralysis:* In the area affected, the catastrophe will have had two principle effects: the destruction of physical facilities upon which social organizations and social cohesion depend, and the disorientation of the persons whose social roles give the society life. Despite previous planning, for the area itself and unless social organizations are introduced from outside, the result will be a period of more or less social paralysis which is likely to last for at least two days. Individuals and small groups may be operating effectively at isolated points, but as a whole, the community will be prostrate. The majority of people will show various kinds and degrees of normal and transitory but debilitating emotional reactions. They will be concerned mainly with their families and possessions. Thus, although there may be some rudimentary social activity, the social organization will be severely crippled and its immediate recovery will depend upon the introduction of social organizations from without.
2. *Spontaneous group formation:* Catastrophe leads to the development of strong feelings of dependency, as already described. People exhibit a strong need to be with others, a disinclination to be left alone, and there is the momentary disappearance of the usual social barriers. Although group formation is an important feature in disaster, group characteristics are quite different during the various periods. During the period of recoil, the group behavior is based upon the needs of the survivors to seek out people, and yet at the same time is characterized by the instability of the groups so formed. There is a definite desire and need to be with others, and to achieve a stable, supporting interpersonal environment. The initiative for this, however, must come from persons other than the survivors, who, though needing others, need them purely for themselves. The result of this is the spontaneous formation of groups which have a definite adaptive value, satisfying strong temporary needs for reassurance, dependence, and talking out. These groups, however, are not particularly effective in getting things done, or in restoring social organization. The groups are typically shifting and unstable and are based upon a community of strong feeling, rather than upon any common rational recognition of the need for cooperative effort, or upon a program of action and recovery.
3. *Group disintegrative attitudes:* Accompanying the spontaneous appearance of groups, there are a number of attitudes and emotional states which contribute

to the instability of the groups, and also make it difficult for leaders or persons from outside to develop effective action. These attitudes and states include irritability, free-floating and indiscriminate hostility, self-concern, anxiety and tension, and the pressure to talk about, to reconstruct, and to assimilate the experience just past. These attitudes must be kept in mind when one is trying to deal with people during this time. They can offer a serious problem for relief organizations working in the stricken area.

4. *Rumor formation:* Particularly if the disaster has occurred without warning, there is an immediate spate of rumors. These concern every aspect of the event — what happened, how, why, when, to whom. Although such rumors are clearly the result of attempts to secure reliable information, they also may be expected as the outcome of needs to express hostility. This hostility seems to be quite common in catastrophe for most people feel, obscurely, that someone must be at fault — "Why should this happen to me?" Many people in a disaster become not so much fearful as angry. If this anger cannot be channelized into useful directions, it may be directed against groups and individuals within the society — minority groups, civic officials, or the government. Rumor also develops on the basis of an attempt on the part of people to justify their own behavior, to give the event concrete dimensions, and to reduce it to something that can be understood and assimilated psychologically. The danger is that rumors distort reality and lead to fantastic thinking and baseless fears, sufficiently severe to produce further eruptions of impulsive individual or mass behavior. Although it is unnecessary and can probably be prevented with adequate planning and understanding, radio and the newspapers have too frequently assisted in the elaboration and embedding of rumors at this time.

5. *Emergent leaders:* The civic leaders of normal times may be replaced by leaders who emerge during and following a catastrophe. Such individuals may play an important and vital role in recovery and usually disappear again when things have returned to normal. Their appearance is based not solely upon their personal characteristics, but also upon their background and qualifications in relation to the particular needs of the situation. In a large midwestern city during a serious flood, there were at least five or six emergent leaders who were crucially important in the management of the disaster situation, but who subsequently disappeared almost completely and have had no particular civic responsibility since. One of them literally took over behind the scenes, directing the activities in the central part of the city, and in fact, administratively, displaced the mayor. In all the municipalities that made up this metropolis, there was only one mayor acting in that capacity immediately following the bursting of the dykes. These emergent leaders can be of greatest importance to the community. They provide energetic and decisive leadership at a time when it is most needed, can galvanize their communities into constructive activity or can provide an effective liaison between organizations coming in from outside and the local population.

With this brief description of some of the individual and social consequences of disaster in mind, I would like now to outline some of *the factors that seem important in determining the nature and severity of the reactions and the process of recovery.* It is clear that the severity and persistence of adverse social circumstances will have a direct bearing upon the severity and persistence of individual psychological disorders.

1. *The element of surprise:* The amount of planning and the period of warning are important, but previous information and anticipation are not always necessarily favorable. Their effect depends upon how the information and warning are given. While it is clear that warning should allow people to take measures to protect themselves, it is just as clear that warning followed by anticipation may also key people to an intolerable pitch of anxiety and tension. The period of anticipation if at all prolonged, should therefore be taken up with concrete activity which allows some draining off of tension and eliminates a period of inactive waiting. Among the factors conducive to the development of impulsive behavior are gradually mounting feelings of helplessness accompanied by anxiety. Previous information and planning can also be unfavorable if delivered at intervals in a startling or

alarmist fashion, or if they deal in generalities without concrete references to what should be *done*. In many instances the periodic publication of dire warning punctuated by long periods of complete official silence can lead to *denial*. The public, after a number of exposures to this type of information program, simply refuses to react any more, and becomes described as "apathetic" — as towards Civil Defence. Again, an information program, if not concrete, matter-of-fact and action-oriented, may serve to "sensitize" the public rather than inform it. This may lead gradually to a chronic and explosive state of anxious anticipation which is simply triggered by the disaster. Under such circumstances, a reaction of denial may be the healthier alternative. It thus seems important that an information program and planning be pitched at a fairly dry, matter-of-fact level, that it be continuous, and that it be concerned with concrete things to *do*. If warning is possible, in view of what we know, this period of waiting and anticipation should be taken up with action that is clearly planned in advance and to which the public will turn in a reflex fashion.

2. *Separation of family members:* For family members to be separated during the acute period of disaster appears to be particularly unfavorable socially and psychologically, particularly for children. On these grounds, there is a strong argument against the separate evacuation of family members, unless one is dealing with a trained and disciplined body such as the military for whom separation is expected, or unless those leaving go to secure billets planned in advance, and those staying behind have a definite job to do.
3. *Outside help:* During the period of social disorganization and paralysis following disaster, it has frequently been observed that among the first to initiate recovery are single persons, and visitors to the city. Small informal group may appear locally, but their efforts at first are usually scattered and ineffective. Instead, it appears that if the community is to recover reasonably quickly, aid must be provided from areas and towns on the periphery of the affected area. This obviously requires previous planning at the periphery, whether it is to send help into the affected area, or to receive evacuees, casualties and survivors. It can therefore, be taken for granted that planning for this particular role in disaster is as necessary and important for the majority of surburban and rural areas between or near target areas, as it is for the target areas themselves. Furthermore, the role of military and quasi-military organizations must be considered in this connection. The regular army or militia possess the organization, the discipline and the equipment, such as communications and transport, that are vitally necessary for dealing with disaster. In practice therefore, it is very probable that the armed forces are going to play a considerable and important part. Their activities should, however, be limited to the acute or early period and the later phases of the disaster left to civilian management. To be most effective, the armed forces should receive fairly intensive instruction at least at the staff level, in dealing with civilians during disaster. The relationship of the military to the civil society during disaster is a topic worthy of much more detailed discussion than space and time permit here.
4. *Leadership:* The importance of leadership in crisis is well recognized. The management of the period of impact and of the individual and social disorganization following the disaster provides an acute need for leadership. There is still a great deal we have to learn about this important factor, for despite the long standing recognition of its importance, we are still unable to pick leaders or train them with complete confidence that they will be able to perform most effectively when the time comes. There are, however, a number of points concerning leadership in disaster that might be noted:

(i) It appears that the ***kinds of leaders*** required during succeeding phases of the disaster are different. For example, whereas leadership following a disaster may require the ability to be decisive, authoritative and directive, and to provide an example with which identification can occur, in later periods leadership must be characterized by qualities that include the ability to work with others, minimize differences wherever possible, to organize and to persevere. It may be suggested, too, that the leadership required to promote interest and planning before disaster has different qualities again. I have already mentioned the emergence of leaders following a disaster, and it is of importance to recognize that these changing requirements of leadership should be met by flexible planning and sufficient social understanding before the event so that previous planning and organization for leadership is not so rigid that it cannot be discarded as unnecessary.

(ii) There are different *levels of leadership.* This is well recognized in the military, but there is great danger in carrying this analogy too far and in applying military patterns of leadership to civil society. One cannot place leadership in civil society from outside or from above downward and expect it to work, save during the most acute period of a crisis when public dependency is maximal. Instead, it is necessary to find out what leaders there are at various levels of society as it exists, to encourage them and to work with them. Failure to do this can be one of the more serious blunders of central planning for disaster or of quasi-military organizations moving into a disaster area from the outside.

(iii) A number of *social roles* in society have in normal times, "built-in" potentials for leadership at time of disaster. This is obvious in the case of any uniform groups such as the military or the police. It is particularly true, also, for the nurse and the doctor. It is to the nurse that people turn in times of stress, for reassurance, guidance and advice. A nurse's role has therefore many powerful elements of leadership and it is her responsibility to recognize these elements in her own role and to be ready to carry out this function.

5. *Communications:* Now that the more informal and personal forms of communication, typical of the small community, have given way in the large city to more impersonal devices such as radio and television, the maintenance of these technical facilities becomes essential. Previous to disaster, for example, it is not enough to communicate a warning. Once this has been given, communication must continue — a strong need for information and guidance will have been immediately established. Afterwards, the guidance, reassurance and social cohesion provided by good communication can prevent the disorientation and confusion that leads to impulsive, irrational behavior on the part of individuals and groups.

Rumor formation is one direct consequence of false or inadequate communication and the importance of providing factual information rapidly, directly and to the right place is essential. Whether in evacuation areas at the periphery, or in delivering help to affected areas, the establishment of a communications network and of public information centers known and available to all should be a task of first priority. These centers, furthermore, should not be concerned with delivering a message or some propaganda worked out in advance and intended to be generally reassuring, but but should focus upon meeting the needs for information developing at the time and in the particular place.

Radio and television are not the only means of communication. In times of stress, the role of institutional symbols takes on added meaning. One should recognize the communication value of the first-aid sign, the badge, the armband, the uniform, and the red cross. Such symbols have very strong connotations, should not be used indiscriminately but strategically to ensure their maximum effect for information and reassurance.

6. *Measures directed toward re-orientation:* The re-establishment of the familiar, the re-identification of individuals as people and as social roles, and the early reconstruction of basic social groupings (e.g., the family, the work group) are essential features for the process of recovery. They can be promoted by the factor of *communication* already referred to. Besides this, evacuation and temporary shelter should be provided in such a manner that *family life and routine but meaningful activity* can be restored as soon as possible.

One of the most significant factors — to my mind, the most significant — is the *registration of evacuees or survivors.* This means to take their names, their addresses, the names of their relatives or friends, their occupations and such information as they have about neighbors or friends. What this does is to *identify* people once again. Its importance is not simply that people such as administrators or officials know where the individual is, but that the individual knows that others know *who he is, where he is* and *how he is.* He is a member of society once again. The information gathered in this manner should be collected in a central clearing house and made readily available so that anxious relatives can get in touch with one another, and people know that others will be able to find them.

The following brief passage from a Japanese physician's account of his experiences at Hiroshima may serve as illustration:

(At the hospital) The corridors were cleared enough to be passable, but in a little while they were as crowded as before. One difficulty was the influx of people looking for friends and relatives.

Parents, half crazy with grief, searched for their children. Husbands looked for their wives, and children for their parents. One poor woman, insane with anxiety, walked aimlessly here and there through the hospital calling her child's name. It was dreadfully upsetting to patients, but no one had the heart to stop her. Another woman stood at the entrance, shouting mournfully for someone she thought was inside. She, too, upset us.

Not a few came in from the country to look for friends and relatives. They would wander among the patients and peer rudely into every face, until finally their behavior became so intolerable that we had to refuse them entrance to the hospital . . .[19]

7. *Evacuation of populations:* Mass exodus and evacuation have been major features of all community disasters from the hurricane or flood to the atomic bomb. It must be expected in any peacetime or wartime disaster of the future. It occurs spontaneously, without orderly movement or direction, and as a blind but powerful impulse to leave the stricken area as soon as possible. A mass movement of return will eventually develop, accompanied by trekking in and out of the area, but the initial spontaneous mass response is exodus. Despite organized planning in the U.K. in some areas, a very large proportion of evacuation took place on a private basis[37]. The following observation comes from Hiroshima:

. . . After the *pika* (explosion) the entire population had been reduced to a common level of physical and mental weakness. Those who were able walked silently towards the suburbs and the distant hills, their spirits broken, their initiative gone. When asked whence they had come, they pointed to the city and said, "that way"; and when asked where they were going, pointed away from the city and said "this way." They were so broken and confused that they moved and behaved like automatons.

Their reactions had astonished outsiders who reported with amazement the spectacle of long files of people holding stolidly to a narrow, rough path when close by was a smooth, easy road going in the same direction. The outsiders could not grasp the fact that they were witnessing the exodus of a people who walked in the realm of dreams.

A spiritless people had forsaken a destroyed city; the way and the means were of no importance . . .Each to his separate course for no better reason than the presence of another in the lead . . ."[19]

Recently, the increase in the destructiveness of nuclear weapons has led to an increasing emphasis in civil defence upon planned evacuation and dispersal of populations from target areas. There has been a tendency in various quarters to regard such planning as unrealistic and to take a fatalistic attitude in the face of such serious threat. Such attitudes, however, could not be more inappropriate, as we can be absolutely sure that spontaneous evacuation of more or less the whole remaining population will occur. Where this is disorderly and particularly where escape is delayed or blocked, panic is likely. It is most likely that such survival as is possible will depend upon the planning that has gone forward in respect to evacuation, both in the target area and in the peripheral communities.

The types of evacuation envisaged — pre-attack evacuation and planned withdrawal — are presently under study by Civil Defence, and the technical problems presented by the plan — detection, communications, warning, transport — are under consideration. Besides these technical problems, however, it must be recognized that planned evacuation means a major social upheaval with serious psychiatric and social implications both for those being evacuated and for those receiving the evacuees in peripheral communities. A large population movement such as this, carried out in a few hours, transplanting an urban population to rural or suburban life, will mean very rapid, social, psychological change for all concerned and intensive problems in adjustment. When a population is billeted for any period of time, only careful planning and specific attention to social and psychological problems will avoid the development of severe interpersonal and social tensions. Such developments have been observed in Canadian studies and in the U.K. during the last war.

Public opinion was shocked by the experiences in evacuation in 1939 (in the U.K.) . . . There was fairly careful planning for certain technical problems such as transportation, but too little for the personal. The indiscriminate handing around of evacuees in the billeting of 1939 inevitably resulted in every conceivable kind of social and psychological misfit[37]. There was widespread lack of knowledge concerning the kinds of reactions that would develop in the evacuees, and little understanding of the standards of conduct, dress or expectation of people from such different backgrounds. In children, for example, the marked increase in enuresis, fecal incontinence and aggressive behavior which might have been predicted was found by those billeting the children to be incomprehensible and shocking.

The point could be illustrated and documented at much greater length. Briefly, it cannot be stated too often that planning for evacuation by *nursing* staff in peacetime or wartime disaster must include reference not only to physical health but also to psychological and social health and welfare.

TREATMENT FACILITIES

It can be seen from the description of the psychological state of survivors following disaster that most people will show emotional and psychological upset of varying degrees of severity and that most of these states are transitory. Experience has shown that a high proportion of those with even fairly severe disturbances will recover if treated early and close to the scene[14]. The main needs are for brief rest, an opportunity to talk out the experience, and the resumption of concrete activity. Heavy or repeated sedation should not be used and avoided wherever possible. A greater than usual degree of hyperactivity, talkativeness and restlessness is normal and should be allowed time to subside. The expectations and attitudes of all medical personnel at this stage will be crucial for the prevention of persistent disorders. It is not expected that the incidence of psychosis will increase, but the most severely disturbed should be removed for psychiatric treatment as they have a demoralizing effect on others and may respond to more active psychiatric management.

CHILDREN

Before concluding, a brief reference should be made to the reactions of children. It has been consistently observed that separation from the parents, and the behavior and reactions of the parents, are the crucial factors in determining the reactions of children to disaster. The most severe features of war for children in the U.K. psychologically were not the bombing and sights of destruction and injury, but the problems of evacuation, displacement from the familiar, and separation from parents. The children appear to experience the dangers not directly but as mediated by significant adults upon whom they depend. This important role of parents and family has again been noted in a recent U.S. study[2]. It has been suggested that there may be age-specific differences in the reactions of children. For example, it has been suggested that older preschool children (two to five years) suffer more intensively than those under two years, [5], or that children five to seven years are particularly affected. Throughout the prolonged experience in Britain with bombing and evacuation, the increases in enuresis, fecal incontinence and aggressive behavior were features of importance, and problems of separation and familiarity were the important factors[4 13 32 35 36 37].

SUMMARY AND CONCLUSIONS

What should the nurse do?

The previous sections have provided a description of the social and psychological consequences of disaster and of the factors that influence the severity and persistence of unfavorable reactions.

All the descriptions and recommendations for management which appear above or which follow, bear upon the prevention and treatment of such disorders as panic. *Panic is not an entity,* a sort of disease that can be treated by some single specific treatment or prevented by a single specific immunization. Rather, the word "panic" refers to a situation — a psychological and social situation — one of the features of which is irrational, fearful and impulsive behavior. Panic is conditioned by *all* the factors discussed in this paper and is the end point of a process of psychological and social decompensation under stress. Characteristic of this process and of approaching decompensation is the existence of rapidly mounting feeling of fear and anxiety in a situation where the individual or group feels helpless and trapped. Part of the same process are earlier signs and symptoms such as marked or irrational fears, rumor formation, hostility, failing communication and minor impulsive and irrational acts of which all of us are capable. The task is to learn to prevent and manage these milder disturbances in ourselves and in others, to anticipate and avoid the circumstances which foster them and to stop their accumulating and persisting by action on the spot.

To repeat what has been said already, the nurse is in a key position in disaster, particularly during the early phases that have been described, when physicians will be few or totally absent. Upon the nurse will fall the lion's share *of the responsibilities for primary prevention* during those early phases and what she says and does will really be crucial. To emphasize some of the points that have been made in the body of the paper, the following recommendations might be suggested:

Prevention:

1. A nurse should join her local Disaster Organization. This should be done either directly or by making sure that the local Nursing Society has a committee concerned with the problem, that it secures representation on the local community Disaster Organization and that it reports back to describe progress and to tell the nursing profession what it should do. The nurse's professional advice and participation is essential in disaster planning at all levels. Disaster Organization as a whole will suffer if this is not done, and when the time comes, the nurse may find that planning has failed to provide what she needs — space, equipment, facilities, organization, and a job to do.
2. The nurse should know what she is going to do personally — as a private citizen and as a nurse. What will she do about her family? Where is she going to go and what is she going to do as a nurse? She should become completely familiar with her place in the overall community disaster plan. She should not make her personal plans so rigidly, however, that if things do not turn out exactly as expected, she is disorganized. Plans should certainly be made so if things turn out approximately as expected, she can get to work without delay; but, she must also *make plans to change her plans,* be prepared to adapt to changing circumstances and be flexible.
3. *Familiarity with the medical possibilities and problems of civil emergencies* **and** of disaster is essential. This means **not** only a familiarity with the physical aspects of trauma or radiation, but also with the psychological and social consequences. The nurse must know what to expect of the people she will see and of herself. A great deal can be learned from the psychological condition of people who have had serious accidents, or who have just been through some emergency. This not only to inform herself, but also so the nurse can inform others. People in disaster turn to the nurse with questions and for help because she is a nurse. The more familiar she is with the situation short of living through it, the more effective she will be in dealing with it herself and in helping others.
4. If the nurse is not in a large centre of population, this may be all the more reason for her to be concerned with *planning*. She will be dealing with the problems of evacuees or find herself part of a group attempting to give aid to an affected area. Present developments place particular emphasis upon the importance of medical planning in peripheral communities.
5. Both the medical schools and some approved hospital schools of nursing neglect training for emergency situations and medical management of civil disaster in their undergraduate curricula. It is recommended that lectures and seminars on these subjects be introduced as regular courses in all nursing undergraduate training.
6. In disaster, *the nurse can prevent many more cases of psychiatric disability than the psychiatrist can treat.*

First Aid and Treatment:

1. Immediately following a disaster, the nurse will have to remember that she is not only an individual with a family —- possibly injured, or possibly bereaved, but that *she also fills a social role.* This role is that of nurse, one to whom people turn instinctively in times of severe stress. The nurse, has, whether she wishes it or not, potentialities and responsibilities for leadership, and leadership is of central importance in dealing with disturbance and in promoting individual and social recovery. *What the nurse does, how she behaves, what she says to others, what she knows and what she recommends will carry great weight at this time and be of crucial significance for others.*
2. There is *psychological first aid as* well

as physical first aid. *The nurse will be functioning in those places and at those times in disaster when first aid is of crucial significance.* The nurse's ability to deal with the emotional reactions of evacuees and survivors will depend to a large degree upon how much she has learned and how much she understands them. How she handles the transitory emotional disturbances she will meet will greatly affect the incidence of more severe psychiatric disorders and their persistence.

3. The nurse must think of *communication.* As a nurse, seeing and helping many people, she is a vital link in the chain of communication in disaster. She must know where information can be obtained, make judgments as to its reliability, pass on any information she secures, and realize that she is in a position to start or stifle rumor because of her prestige and influence.
4. The nurse should assist in *the registration of survivors and evacuees.* She may not have time to do it herself, but she must be sure that it is done, that people, however severely injured or emotional and irritating, are given a chance to identify themselves, to have the information recorded, and to know that it will be passed on to an appropriate centre so that friends or relatives can find them.

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Aspects Sociaux et Psychologiques de Calamités Publiques

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LES CHANGEMENTS survenus dans le rôle de l'infirmière ont été accélérés au cours des dernières années et certains observateurs en ont fait l'objet de diverses études [3,10,15,18,28,29,30,34,44]. Deux modifications bien caractéristiques peuvent être identifiées. Premièrement: la responsabilité croissante de l'infirmière en ce qui concerne les techniques et les fonctions qui étaient auparavant confiées au médecin; et deuxièmement: l'accent accru sur les initiatives techniques des soins infirmiers au dépens des services manuels et plus directs rendus aux malades. Bien que de nombreux observateurs déplorent cette seconde tendance, il est peu probable que la première, la délégation de plus grandes fonctions médicales à l'infirmière, soit en voie de diminuer et à plus forte raison de disparaître. En outre, les initiatives de l'infirmière s'étendent à diverses institutions et organismes sociaux en dehors de l'hôpital, tels que l'industrie, les écoles, les associations de bien-être, les agences communautaires, les soins infirmiers à domicile et les organismes locaux.

Advenant une calamité publique, une responsabilité encore plus grande est dévolue à l'infirmière, car elle doit alors jouer un rôle important [25,31]. C'est sur l'infirmière que retombera une grande partie du fardeau dans les circonstances critiques et avec la pénurie de médecins, qui est susceptible de se produire, l'infirmière devra encore exécuter de nombreuses fonctions.

La documentation sur cet aspect des situations critiques a été jusqu'ici fondée sur l'expérience en temps de guerre [16,23] ou sur les rapports concernant la participation imprévue à une catastrophe d'origine naturelle. Au cours des dernières années, il y a eu accroissement rapide des recherches organisées ainsi que des examens et des enquêtes méthodiques [8,21,22,24,27,37,39,40,41]. Par la suite, ces constatations ont été appliquées aux problèmes que pose l'organisation médicale au sein de la défense civile et après une calamité publique [1,7,11,12,17,43,45]. Les données exposées dans le présent article, sont fondées sur cette documentation et aussi, plus particulièrement, sur les études pratiques effectuées par l'auteur au Canada pendant plusieurs années.

Nous nous proposons dans le présent article de décrire l'évolution na-

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turelle des réactions individuelles et collectives en face de la calamité car nous sommes persuadés que la connaissance de ces manières élémentaires de réagir est indispensable pour bien comprendre et adopter des mesures raisonées avant et pendant une calamité.

On laisse souvent entendre que les catastrophes présentent des circonstances tellement extraordinaires qu'il est inutile de chercher à s'y préparer. Certaines expériences au cours d'un désastre sont tellement chargées d'un sentiment personnel et subjectif très vif que la principale impression qui s'en dégage est leur caractère unique et imprévisible. Toutefois, la tâche entreprise a consisté à rechercher les manières générales et caractéristiques de réagir psychologiquement en face d'une catastrophe, de les décrire et de tirer de ces descriptions des conseils concrets qui permettront d'adopter certaines mesures permanentes supplémentaires qui sont ordinairement remplies par des médecins.

Cet article traite des aspects sociaux et psychologiques des catastrophes. L'un des problèmes fondamentaux du désastre, est le comportement de la population. Le comportement de la population et sa direction psychologique constitueront une question fondamentale de laquelle dépendra le succès de toutes les autres questions. Derrière les diverses initiatives techniques exécutées par les infirmières à la suite d'une calamité, il y a les personnes qui les exécutent. En outre, en plus des blessures physiques subies par les survivants, il y a divers troubles psychologiques plus ou moins graves. Par conséquent, il est indispensable que les infirmières connaissent les réactions des gens en face d'une catastrophe, leur comportement et ce qu'elles peuvent faire pour leur venir en aide. Cet article s'adresse aux infirmières dans l'espoir qu'elles rempliront, peut-être encore plus que les médecins, un rôle fondamental en vue de soulager les troubles psychologiques à la suite d'une catastrophe.

Réactions individuelles

Lorsqu'on considère tout d'abord les réactions individuelles en face de la catastrophe, on peut décrire une évolution soutenue composée de trois phases qui chevauchent les unes sur les autres: *a) la période de choc; b) un mouvement de recul et c) une période post-traumatique.* Les trois périodes sont caractérisées d'après la tension, la durée et les phénomènes psychologiques et sociaux. Cette conception a été décrite ailleurs, mais les principales particularités font ici l'objet d'une récapitulation$_{39}$.

Tension: (a) La première période de choc est caractérisée par la présence et l'effet des tensions initiales et elle se poursuit jusqu'à ce que ces tensions cessent d'influencer l'individu ou le groupe. C'est la période d'effet maximum et direct de la catastrophe.

(b) La période de recul est caractérisée par la suspension des tensions initiales et commence lorsque l'individu réussit à éviter leur effet direct pendant au moins un moment grâce à une manoeuvre quelconque telle que la fuite. Certaines tensions peuvent se faire sentir pendant cette période (par exemple le froid, des blessures subies pendant la première période, etc.), mais au point de vue psychologique et en fonction de l'intensité et du genre, elles demeurent suspendues.*

(c) Les tensions de la période post-traumatique dérivent de celles qui ont été subies pendant la période initiale et sont évidemment "sociales" de leur nature. C'est pendant cette période qu'on se rend compte pleinement de ce que signifie la calamité: la perte du foyer, des biens, de la sécurité financière, particulièrement les deuils. Elle commence après que la tension initiale a été surmontée, lorsque l'individu doit encore faire face au problème de la vie quotidienne dans un milieu dont plusieurs aspects importants ont été modifiés (deuils, destruction de la maison, de l'entreprise ou des biens).

Durée: En ce qui concerne la *durée,*

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*Le genre et la gravité d'autres tensions peuvent prolonger la première période de choc; ou, en d'autres mots, elles produiront un autre choc immédiatement après le premier et, par conséquent, elles retarderont le mouvement de recul pendant une certaine période de temps. Dans le présent exposé, cependant, on décrit l'évolution à la suite d'une tension aiguë puis celle qui suit des tensions prolongées ou répétées.

(a) la période de choc peut varier dans des cadres assez larges. Toutefois, lorsqu'il s'agit d'une grave catastrophe, elle peut durer de 3 à 5 minutes et parfois même 1 heure. La période de choc dans le cas d'un sinistre maritime a duré de 3 à 6 minutes et, dans le cas d'une inondation, d'une demi-heure à une heure et demie. (b) La durée du mouvement de recul varie également, mais dans une plus faible mesure, sauf dans le cas des réactions anormales qui durent de plusieurs heures à quelques jours et sont déterminées plus par les différences individuelles que par la nature des tensions. (c) La période post-traumatique dure par hypothèse au moins pendant le restant de la vie et comprend la période de réadaptation.

Phénomènes Psychologiques: Voici un sommaire des principales tendances observées.

(a) *Pendant la période de choc*, les réactions se divisent en trois catégories principales. Un groupe d'environ 12 à 25% des survivants sont calmes, dirait-on, et ils conservent leur sang-froid pendant la situation critique. Ils peuvent faire preuve de lucidité, ils se rendent compte de la situation, formulent un plan d'action, et l'exécutent. Un deuxième groupe, représentant ce qu'on pourrait appeler la réaction normale à la période de choc, est composé des trois quarts des survivants qui sont abasourdis et désorientés. La plupart d'entre vous, chers lecteurs, feriez partie de cette catégorie. Pendant cette période, ils manifestent certaines caractéristiques qui sont importantes, car elles permettent de comprendre leur comportement: une restriction précise dans leur possibilité d'attention; ils n'éprouvent aucune émotion ou sentiment subjectif, bien qu'ils manifestent certaines particularités physiologiques de la peur et possèdent un comportement automatique ou réflexe. Le dernier groupe composé de 10 à 25% a des réactions évidemment peu appropriées; désarroi, peur qui paralyse, incapacité à sortir du lit, pleurs et cris hystériques et ainsi de suite*.

(b) *Pendant la période de recul*, la plupart des survivants cherchent à s'abriter, ils s'assoient ou déambulent dans les halls d'hôtels, s'installent chez des amis ou des parents, sont transportés dans des taxis ou des ambulances, obtiennent un abri temporaire ou des soins, ou donnent pour la première fois un compte rendu de leurs expériences. Pendant cette période, il y a un retour progressif à la lucidité et à la compréhension des événements récents. Par la suite, les souvenirs au sujet de cette période sont plus précis, mais ne sont pas absolument complets. C'est pendant cette période que se produit la première expression émotive des survivants durant laquelle ils éprouvent subjectivement un sentiment ou une émotion, soit l'anxiété ou la peur, soit la colère. Pendant cette période de recul, la plupart des survivants se rendent compte pour la première fois des épreuves qu'ils viennent de traverser et la calamité atteint enfin cette perspective limitée. Ils ressentent le besoin de parler ou de se soulager pendant cette période, de se mettre en colère contre quelqu'un ou de s'exprimer d'une façon quelconque. Le besoin de se confier est associé à une attitude enfantine de dépendance qui constitue un facteur essentiel de cette phase. Les personnes qui s'occupent des survivants, les rassurent véritablement et leur viennent en aide peuvent déclencher une attitude de dépendance chez ces derniers qui étaient auparavant peu communicatifs ou insensibles. Ils veulent obtenir quelque chose, du café ou des couvertures, ou ils veulent qu'on s'occupe d'eux. L'importance du don ou des soins infirmiers semble être secondaire en comparaison de la signification psychologique des soins. Lorsqu'on parle aux survivants quelque temps après, ils décrivent ces attitudes avec amusement et en même temps ils soulignent le caractère réel et impérieux de leurs besoins pendant cette phase initiale. Chez la plupart, cette période de dépendance est transitoire et même un ou deux jours plus tard, le survivant ne voudra peut-être pas parler aussi librement qu'il l'a fait auparavant. Il devient assez indépendant, et il ne consentira peut-être pas à accepter de l'aide même s'il en a grandement besoin.

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*Les phénomènes psychologiques de cette période de choc que nous avons décrits ont une grande portée sur des faits qui se produisent dans cette période et d'autres qui se produisent subséquemment. Ils comprennent l'évolution de l'hostilité et l'attitude de bouc émissaire qui en découle, une initiative et des qualités dynamiques de chef, un sentiment de culpabilité dynamique qui peut se manifester par la suite et la fonction du dynamisme collectif par rapport à l'individu. En raison de l'espace limité, ces questions n'ont pas été traitées dans le présent exposé.

Il ne s'agit ici que d'un bref exposé, mais l'impression actuelle est que *la période de recul* représente une partie très importante dans l'évolution de la réaction à la calamité. Le caractère des réactions individuelles pendant cette période et leur maniement par le personnel engagé dans le travail de sauvetage et de secours semblent avoir une signification primordiale qui influence les événements psychologiques subséquents.

(c) Les réaction de *la période post-traumatique* ressemblent plus aux phénomènes que les psychiatres rencontrent et qu'ils désignent sous le nom de réactions post-traumatiques. Elles comprennent une anxiété temporaire, une fatigue, des psychoses intermittentes, des cauchemars, des réactions de dépression et ainsi de suite. Les réactions plus graves et prolongées sont celles qui sont comprises dans les termes généraux de "syndrome traumatique" et de "névroses post-traumatiques" qui se manifestent pendant cette période.

Réactions émotives et victimes relevant de la psychiatrie. A la suite de cette brève description, on peut constater que la plupart des gens manifesteront des troubles psychologiques et émotifs immédiatement après une calamité. La plupart de ces réactions qu'il faudra tenir pour normales seront transitoires, car il se produira un rétablissement spontané ou une réaction rapide à la suite d'un repos et de soins prodigués avec sympathie. Il y aura un certain nombre de réactions plus graves et plus persistantes, les victimes relevant de la psychiatrie, mais on ne croit pas qu'il y en aura un grand nombre, aussi longtemps qu'elles seront soignées rapidement près du lieu de la catastrophe. L'apparition de troubles psychologiques pourra d'une certaine façon être retardée, masquée ou voilée par une blessure physique. De nombreux troubles physiques : nausées, dysepsie, maladies gastriques, maux de tête et ainsi de suite, seront les conséquences de troubles émotifs plutôt que d'une maladie physique et pourront persister si on ne les diagnostique pas et qu'on ne prodigue pas les soins appropriés.

CONSÉQUENCES SOCIALES

En étudiant ensuite les conséquences sociales de la calamité, il convient de mentionner deux périodes : la première commence immédiatement après la catastrophe même, la seconde commence également peu de temps après la calamité, mais elle se poursuit pendant la période de rétablissement.

L'effet immédiat de toute catastrophe au cours de la période de choc se fait sentir dans les modes d'action réciproque et sociale sur lesquels nous comptons tous. Ces modes vont des relations subtiles et intimes aux modes publics et formels d'espoir et de réactions qui prennent de plus en plus d'importance au fur et à mesure que la collectivité croît en importance. Les familles et les amis intimes sont séparés et en même temps diverses institutions sociales et rôles sociaux, services de ville, médecine, communications, police, transport, bien-être sont affaiblis ou anéantis. La "fragmentation" sociale est immédiate et générale. De nombreux individus qui sont transportés immédiatement et sans avertissement d'un endroit familier à un autre inconnu se sentent menacés et désorientés.

En plus de la désorientation et de la confusion générales, les conséquences possibles sont tout d'abord des réactions collectives telles que la panique ou la fuite générale ou une activité outrée, générale, agitée, sans but et irréfléchie.

La panique générale la plus sinistre ne se rencontre pas communément dans nos villes et dans nos grandes localités à la suite d'une calamité, particulièrement lorsqu'une élaboration a été effectuée au préalable. Les preuves fournies par les villes d'Halifax$_{33}$, d'Hambourg$_{41}$, d'Hiroshima et de Nagasaki$_{19\ 40}$, révèlent qu'en dépit du fait qu'on puisse constater tout d'abord une évacuation générale, il est plus typique de trouver une fuite momentanée, un retour et une activité dépourvue d'organisation.

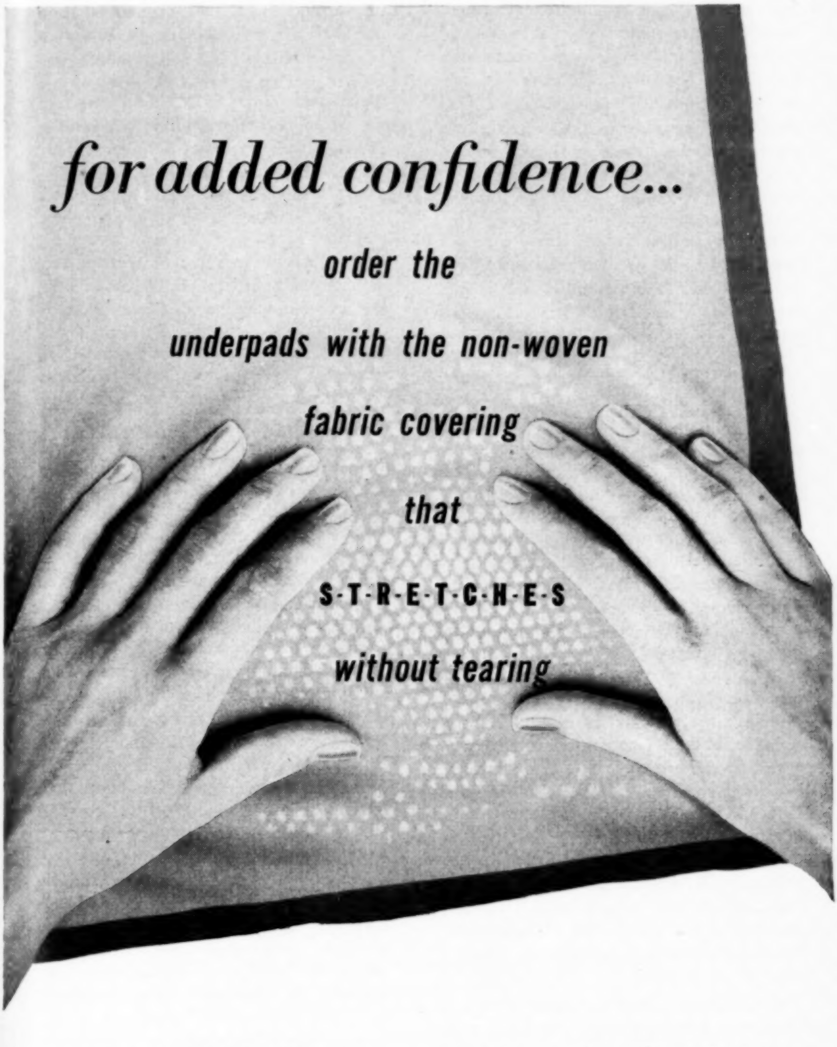
Ces considérations s'appliquent à la situation au moment de la catastrophe et celle qui survient immédiatement après. Les autres événements qui surviennent ensuite sont également importants et peuvent être caractérisés de la manière suivante :

1. *Paralysie sociale:* Dans la région touchée, la catastrophe aura deux effets principaux : la destruction des commodités matérielles sur lesquelles les organisations et la cohésion sociales comptent et la désorientation des personnes dont les fonctions sociales animaient la vie de la société. En dépit d'une élaboration antérieure, dans la localité même et à moins que des organisations sociales ne viennent de l'extérieur, il en résultera une période de paralysie sociale qui durera au moins deux jours. Des individus et des petits groupes pourront agir efficacement à des points isolés, mais en général, la localité sera accablée. La plupart des gens manifesteront à divers degrés plusieurs réactions émotives normales et transitoires mais débilitantes. Ils s'inquiéteront surtout de leur famille et de leurs biens. Ainsi, bien qu'il puisse y avoir une activité sociale rudimentaire, l'organisation sociale sera gravement paralysée et son rétablissement immédiat sera subordonné à l'introduction d'organisations sociales venant de l'extérieur.

2. *Formation spontanée de groupes:* Une catastrophe mène à la manifestation des vifs sentiments de dépendance que nous avons déjà décrits. Les gens ressentent un puissant instinct grégaire, une répugnance à demeurer seuls et il se produit une disparition monmentanée des barrières sociales habituelles. Bien que la formation de groupes soit une particularité importante en cas de catastrophe, les caractéristiques collectives évoluent beaucoup pendant les diverses périodes. Pendant la période de recul, le comportement collectif est fondé sur le besoin que les survivants éprouvent à rechercher des gens et en même temps cette période est caractérisée par l'instabilité des groupes ainsi formés. Il y a un désir et un besoin bien précis d'être avec d'autres et à établir un milieu stable et solide. Toutefois, cette initiative doit être prise par des personnes autres que les survivants qui, bien qu'ils aient besoin de certaines gens, en ont besoin simplement pour eux-mêmes. Il en résulte la formation spontanée de groupes précis et souples qui assouvissent les vifs besoins temporaires d'être rassuré, d'être dirigé et de se confier. Ces groupes cependant ne sont pas particulièrement efficaces lorsqu'il faut agir ou rétablir l'organisation sociale. Les groupes changent typiquement et sont peu stables. Ils sont fondés sur un vif instinct grégaire plutôt que sur la reconnaissance collective et raisonnée de la nécessité de collaborer, de dresser un programme d'action et de préparer le rétablissement.

3. *Attitudes collectives destructrices:* Accompagnant l'apparition spontanée des groupes, il y a un certain nombre d'attitudes et d'états émotifs qui contribuent à l'instabilité des groupes et rendent plus difficile la tâche des chefs et des personnes de l'extérieur qui doivent adopter des mesures efficaces. Ces attitudes et ces états comprennent l'irritation, une hostilité aveugle et générale, l'inquiétude, l'anxiété, la tension, la tendance à parler et à reconstituer afin d'assimiler l'expérience vécue. Il faut bien tenir compte de ces attitudes lorsqu'on s'occupe des survivants à ce moment-là. Ils peuvent poser un grave problème aux organismes de secours qui travaillent dans la région éprouvée.

4. *Lancement des rumeurs:* Lorsqu'une catastrophe survient subitement, les rumeurs se propagent immédiatement. Ces rumeurs portent sur chaque aspect de l'événement, quand, comment, où, pourquoi il est arrivé. Bien qu'elles soient clairement le fruit de tentatives effectuées en vue d'obtenir des renseignements sûrs, elles peuvent également résulter de la nécessité d'exprimer une certaine hostilité. Cette hostilité semble être très fréquente après une catastrophe, car la plupart des gens estiment vaguement que quelqu'un doit être coupable : "Pourquoi une telle chose doit-elle m'arriver?" Bien des gens après une catastrophe sont irrités plutôt que craintifs. Lorsque cette irritation ne peut être canalisée, soit par exemple contre l'ennemi, ce qui est évidemment la meilleure solution, elle pourra se porter contre certains groupes ou individus au sein de la société, des groupes minoritaires, des fonctionnaires municipaux ou ceux de l'Etat. Les rumeurs se propagent également lorsqu'une certaine partie de la population cherche à justifier son propre comportement, afin de donner à l'événement des dimensions concrètes et à le ramener à des proportions qui peuvent être comprises ou assimilées psychologiquement. Il y a danger cependant que les rumeurs déforment la réalité et mènent à des opinions fantastiques et des craintes non fondées assez fortes pour donner lieu à d'autres manifestations de comportement impulsif chez certains indi-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5. *Chefs qui surgissent:* Les directeurs municipaux des temps normaux pourront être remplacés par des chefs qui surgiront pendant et après une catastrophe. Ces individus pourront jouer un rôle d'importance capitale dans le rétablissement, mais ordinairement ils disparaissent lorsque la situation redevient normale. Leur apparition n'est pas uniquement fondée sur leurs qualités personnelles, mais sur leurs antécédents et leurs aptitudes en face des besoins particuliers de la situation. Dans une grande ville des Prairies pendant une grave inondation, cinq ou six chefs sont apparus, ils ont rempli un rôle important en dirigeant la situation, mais ils sont disparus presque complètement par la suite et n'ont rempli aucune fonction municipale depuis. L'un d'entre d'eux s'est presque pour ainsi dire emparé du pouvoir en dirigeant l'activité au centre de la ville et, de fait, au point de vue administratif il a supplanté le maire. Dans toutes les municipalités qui composaient cette agglomération urbaine, il n'y avait qu'un seul maire remplissant cette fonction immédiatement après la rupture des digues. Ces chefs qui surgissent peuvent être très importants dans la localité. Ils fournissent une direction énergique et décisive à un moment où elle est particulièrement nécessaire, ils peuvent lancer leur localité dans une activité constructive ou ils peuvent fournir une liaison efficace entre les organismes qui viennent de l'extérieur et la population de la localité.

Après cette brève description de certaines conséquences individuelles et sociales de la catastrophe dont il a été question, je voudrais maintenant exposer *certains facteurs qui semblent importants lorsqu'il s'agit de déterminer la nature et la gravité des réactions ainsi que l'évolution du rétablissement.* Il est évident que la gravité et la persistance de circonstances sociales défavorables auront une conséquence directe sur la gravité et la persistance des troubles psychologiques individuels.

1. *L'élément de surprise:* La quantité d'élaboration et la période d'avertissement sont importantes, mais les renseignements préalables et l'anticipation ne sont pas nécessairement toujours favorables. Tout dépend comment les renseignements et l'alerte sont donnés. Il semble évident que l'alerte doit permettre aux gens de prendre les mesures voulues afin de se protéger, mais il est clair également que l'alerte suivie d'une période d'attente peut aussi susciter chez les gens une tension et une anxiété intolérables. Lorsque la période d'anticipation est prolongée, elle doit être consacrée à une activité concrète qui permet de se détendre et d'éliminer une certaine période d'inaction. Parmi les facteurs qui aboutissent à un comportement impulsif, il faut mentionner des sentiments croissants d'impuissance accompagnés d'anxiété. Des renseignements et une élaboration préalables peuvent également être défavorables lorsqu'ils surviennent à certains intervalles d'une manière frappante ou inquiétante ou lorsqu'ils portent sur des généralités qui n'ont aucun rapport concret avec ce qu'il s'agit de *faire.* Dans plusieurs cas, la publication périodique d'avertissements lugubres, ponctuée par de longues périodes d'un mutisme officiel complet peut aboutir à la *dénégation.* Le public, après avoir été exposé plusieurs fois à ce genre de programme d'information, refuse simplement de réagir encore et devient apathique, comme par exemple à l'endroit de la défense civile. Ici encore, lorsqu'un programme d'information n'est pas concret, simple et réaliste, il peut servir à rendre le public plus inquiet au lieu de le renseigner, ce qui peut donner lieu graduellement à un état chronique explosif d'attente anxieuse que la catastrophe ne fait simplement que déclencher. Dans de pareilles circonstances, une réaction de dénégation peut constituer un choix plus sain. Il semble donc important que l'élaboration et le programme d'information soient d'un ton assez sec, réaliste et soutenu et qu'ils s'occupent des choses concrètes à *effectuer.* Lorsque l'alerte est possible, en raison de ce que nous savons, la période d'attente et d'anticipation doit être consacrée à des mesures qui sont clairement préparées au préalable et vers lesquelles le public se tournera instinctivement.

2. *Séparation des membres d'une famille:* Il semble particulièrement défavorable au point de vue social et psychologique

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que les membres d'une famille, notamment les enfants, soient séparés pendant la période critique d'une catastrophe. Voilà pourquoi, il est de beaucoup préférable de ne pas évacuer séparément les membres d'une même famille, à moins qu'il ne s'agisse d'un corps discipliné et formé tel que les militaires dont la séparation est attendue ou à moins que ceux qui partent ne se rendent à des logements organisés d'avance et ceux qui restent aient un travail bien défini à accomplir.

3. *Aide extérieure:* Pendant la période de désorganisation et de paralysie sociale qui suit une catastrophe, on a fréquemment constaté que les premiers à se rétablir sont les célibataires et les étrangers. De petits groupes officieux peuvent paraître dans la localité, mais leurs efforts tout d'abord semblent inefficaces et dispersés. Afin, semble-t-il, que la localité se rétablisse assez rapidement, l'aide doit provenir des régions ou des villes situées à la périphérie des régions éprouvées. Il faut donc évidemment une élaboration préalable à la périphérie, qu'il s'agisse d'envoyer de l'aide à la région touchée, d'accueillir les évacués, les victimes et les survivants. On peut donc considérer comme admis que l'élaboration pour ce rôle particulier au cours d'une catastrophe est aussi importante et nécessaire dans la plupart des régions excentriques et rurales entre les régions-cibles ou à proximité de celles-ci que dans les régions-cibles elles-mêmes. En outre, le rôle des forces militaires ou des organismes quasi-militaires peut être étudié sous ce rapport. L'armée permanente ou la milice possède l'organisation, la discipline et le matériel, notamment les communications et le transport, qui sont indispensables pour faire face à une catastrophe. En pratique donc, il est très probable que les forces armées joueront un rôle important et considérable. Leurs initiatives, toutefois, doivent être bornées aux premières phases aiguës et les phases subséquentes de la catastrophe seront laissées à la direction civile. Afin d'être plus efficaces, les forces armées doivent recevoir une formation assez poussée, du moins au niveau de l'état-major, sur les relations à entretenir avec la population civile pendant une catastrophe. Les relations qui doivent exister entre la milice et la population civile pendant une calamité sont un sujet très intéressant qui exige un exposé beaucoup plus détaillé que celui que nous pouvons lui accorder ici.

4. *Direction:* L'importance de la direction dans une circonstance critique est reconnue. La période de choc et la désorganisation sociale et individuelle qui suivent une catastrophe nécessitent une direction. Nous avons encore beaucoup à apprendre au sujet de ce facteur important, car, en dépit du fait que son importance soit reconnue depuis longtemps, nous sommes encore incapables de choisir des chefs, de les former et de pouvoir être entièrement sûrs qu'ils seront en mesure d'agir efficacement lorsque le temps viendra. Il y a toutefois un certain nombre de points qu'on pourrait noter au sujet de la direction pendant une catastrophe.

(i) Il faut, semble-t-il, des *genres différents de chefs* pendant les phases successives d'une catastrophe. Par exemple, tandis que la direction à la suite d'une catastrophe peut nécessiter un esprit de décision et d'autorité qui donne l'exemple dans les périodes qui suivent, la direction doit être caractérisée par des qualités qui comprennent l'aptitude à collaborer avec d'autres, à minimiser les divergences lorsque la chose est possible, à organiser et à persévérer. Il faudrait souligner aussi que la direction nécessaire pour susciter l'intérêt et favoriser l'élaboration exige encore des qualités différentes. J'ai déjà signalé que certain chefs sont apparus à la suite d'une catastrophe et on doit se rendre compte qu'il faudra répondre à ces exigences variées de la direction grâce à une élaboration souple et une compréhension sociale suffisante avant l'événement de sorte que l'élaboration et l'organisation antérieures à l'égard de la direction ne soient pas tellement strictes qu'elles ne puissent être laissées de côté comme étant inutiles.

(ii) Il y a divers *niveaux de direction.* C'est là un facteur reconnu dans le domaine militaire, mais il est dangereux de pousser la comparaison trop loin et d'appliquer les méthodes militaires de direction à la société civile. On ne peut confier la direction de la société civile à une personne venant de l'extérieur ou de haut en bas et compter qu'elle sera couronnée de succès, sauf dans une période aiguë de crise lorsque la dépendance publique atteint son maximum. Au lieu, il faut trouver quels sont les chefs aux divers niveaux dans les cadres actuels de la société, les encourager et collaborer avec eux. Tout manquement en ce sens peut constituer une des erreurs les plus graves de l'élaboration centrale en vue de la catastrophe ou des organismes quasi-militaires qui viennent de l'extérieur dans la région éprouvée.

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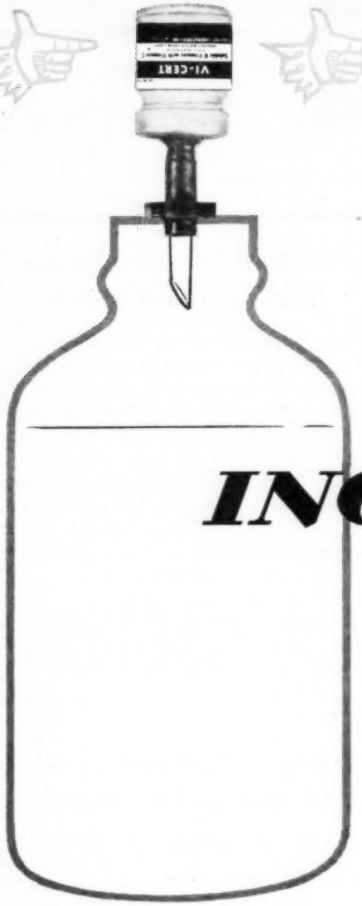

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(iii) Un certain nombre de *rôles sociaux* possèdent en soi en temps normal certaines possibilités de direction au moment d'une catastrophe. C'est évident dans le cas des groupes qui portent l'uniforme tels que les militaires ou la police. La chose est particulièrement vraie dans le cas de l'infirmière ou du médecin. C'est vers l'infirmière que les gens se tournent à des époques de tension afin d'être rassurés, guidés et conseillés. Le rôle d'une infirmière a donc plusieurs éléments puissants de direction et il lui incombe de reconnaitre ces éléments dans son propre rôle afin d'être prête à remplir cette fonction.

5. *Communications:* Comme les formes les plus officieuses et personnelles de communication typique dans une petite localité ont cédé la place dans la grande ville à des dispositifs impersonnels tels que la radio et la télévision, l'entretien de ces commodités techniques devient indispensable. Avant une catastrophe, par exemple, il n'est pas suffisant de lancer un avertissement. Une fois la chose faite, la communication doit se poursuivre car un besoin de renseignements et d'orientation aura été immédiatement établi. Par la suite, l'orientation, l'encouragement et la cohésion sociale fournis grâce à une bonne communication peuvent atténuer la désorientation et la confusion qui mènent au comportement irraisonné et impulsif des individus et des groupes.

Le lancement des rumeurs constitue une conséquence directe des communications erronées ou insuffisantes, mais il est indispensable de fournir rapidement et directement à l'endroit voulu des renseignements réels. Qu'il s'agisse des régions à évacuer à la périphérie ou de l'aide à accorder aux régions éprouvées, l'établissement d'un réseau de communications et des centres d'information publique connus et à la disposition de tous devra constituer une tâche de première importance. En outre, ces centres ne devront pas s'occuper de transmettre un message ou une certaine propagande préparée à l'avance et destinée à être généralement rassurante, mais ils devront s'attacher à satisfaire aux exigences d'information qui se pré-

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senteront à ce moment et à cet endroit-là.

La radio et la télévision ne sont pas les seuls moyens de communication. En temps de tension, le rôle des symboles institués prendront une nouvelle signification. Il convient de reconnaître la valeur de communication que possède le symbole des premiers soins, l'insigne, le brassard, l'uniforme et la croix rouge. De pareils symboles possèdent une signification particulière et ils ne doivent pas être utilisés indifféremment, mais stratégiquement, afin d'assurer qu'ils aient un effet maximum d'information et d'encouragement.

6. *Mesures visant à une nouvelle orientation:* Le rétablissement des choses familières, une nouvelle identification des individus et de leur rôle social et la reconstruction rapide des groupes sociaux élémentaires (c'est-à-dire la famille, le milieu de travail) sont des particularités indispensables dans l'évolution du relèvement. Ils peuvent être favorisés par le facteur des *communications* que nous avons déjà mentionné. En outre, il faut fournir les moyens d'évacuer et un abri temporaire de sorte que la *vie familiale et la routine qui soit une activité significative* puissent être rétablies aussitôt que possible.

L'un des facteurs les plus significatifs, à mon avis le plus significatif, est *l'inscription des évacués ou des survivants,* ce qui veut dire inscrire leur nom, leur adresse, le nom de leurs parents ou de leurs amis, leur occupation et les renseignements qu'ils possèdent au sujet de leurs voisins ou de leurs amis. Cette formalité permet d'*identifier* les gens à nouveau et elle a son importance non pas simplement parce que les administrateurs ou les fonctionnaires sauront où se trouve l'individu, mais parce que l'individu sera convaincu que d'autres savent *qui il est, où il est* et *comment il est.* Il appartient encore à la société. Les renseignements recueillis de cette façon devront être acheminés à un bureau central et facilement transmis afin que les parents inquiets puissent communiquer les uns avec les autres et que les individus sachent que d'autres pourront les retracer.

Voici un bref passage extrait du compte rendu donné par un médecin japonais au sujet de ses expériences à Hiroshima. Ce compte rendu pourra servir d'illustration.

> (A l'hôpital). Les corridors avaient été déblayés de façon à pouvoir y passer, mais après quelque temps, ils étaient aussi encombrés qu'auparavant. La foule de gens cherchant leurs amis ou leurs parents constituait une des difficultés.
>
> Les parents à moitié fous de douleur cherchaient leurs enfants. Les maris cherchaient leur épouse et les enfants leurs parents. Une pauvre femme folle d'anxiété errait à l'aventure ici et là dans l'hôpital répétant le nom de son enfant. C'était un spectacle terriblement touchant pour les malades, mais personne n'avait le courage de l'arrêter. Une autre femme se tenait à l'entrée, criant d'une voix lugubre le nom de quelqu'un qu'elle croyait être à l'intérieur. Elle aussi nous bouleversait.
>
> Plusieurs étaient venus de la campagne pour retracer des amis ou des parents. Ils erraient parmi les malades, scrutant effrontément chaque visage jusqu'à ce que leur conduite devienne tellement intolérable que nous fûmes obligés de leur refuser l'entrée à l'hôpital . . . [19]

7. *Évacuation de la population:* La fuite et l'évacuation générales ont été les principales particularités des catastrophes collectives, qu'il s'agisse de l'ouragan, de l'inondation ou de la bombe atomique. Il faudra s'y attendre dans toute catastrophe future en temps de paix ou en temps de guerre. Elle se produit spontanément, sans mouvement ni direction méthodiques sous forme d'impulsion aveugle mais puissante de quitter la région éprouvée le plus tôt possible. Un mouvement général de retour se fera sentir éventuellement accompagné d'arrivées et de départs, mais la réaction initiale et spontanée de la masse est la fuite. En dépit de l'élaboration organisée dans certaines régions du Royaume-Uni, une proportion élevée de personnes ont pris la fuite[37]. Les commentaires suivants proviennent d'Hiroshima.

> Après l'explosion, toute la population a été réduite à un niveau commun de faiblesse physique et mentale. Ceux qui le pouvaient se dirigeaient silencieusement vers la banlieue et les collines éloignées, leur courage brisé, leur initiative disparue. Lorsqu'on leur demandait d'où ils venaient, ils montraient la ville et répondaient: "De ce côté-là"; et lorsqu'on leur demandait où ils allaient, ils montraient la direction opposée et disaient: "De ce côté-là." Ils étaient tellement brisés et bouleversés qu'ils se déplaçaient et agissaient comme des automates.
>
> Ces réactions ont étonné les personnes de l'extérieur qui ont signalé avec surprise qu'elles avaient vu de longues files de personnes qui s'acheminaient par un sentier étroit et ardu, alors que tout près, il y avait une route égale et facile dans la même direction. Ces personnes ne pouvaient comprendre qu'elles assistaient à l'exode de gens qui traversaient le pays des rêves.
>
> Une population brisée abandonnait une

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ville détruite, la manière et les moyens importaient peu . . . Tous suivaient le même chemin, simplement parce qu'il y avait quelqu'un à la tête . . .19

Récemment, la plus grande destructivité des armes nucléaires a porté la défense civile à appuyer davantage sur l'évacuation organisée et la dispersion des populations qui demeurent dans les régions-cibles. Il y a une tendance dans divers milieux à considérer cette élaboration comme étant peu réaliste et à adopter une attitude fataliste en face de cette grave menace. Toutefois, ces attitudes sont complètement déplacées, car nous pouvons être absolument certains que se produira l'évacuation spontanée de presque toute la population qui reste. Lorsqu'il y a du désordre et particulièrement lorsque la fuite est retardée ou bloquée, la panique peut éclater. Il est probable que la survivance possible sera déterminée par l'élaboration qui aura été effectuée à l'égard de l'évacuation dans la région-cible et dans les localités de la périphérie.

Deux genres d'évacuation envisagées, l'évacuation précédant l'attaque et le retrait organisé sont actuellement étudiés par la défense civile ainsi que les problèmes techniques posés par le plan: détection, communications, alerte, transport. Cependant en plus de ces problèmes techniques, il faut admettre qu'une évacuation organisée signifie un bouleversement social important avec de graves conséquences psychiatriques et sociales pour les évacués et ceux qui accueillent les évacués dans les localités situées à la périphérie. Un tel déplacement considérable transplantant dans l'espace de quelques heures une population urbaine dans un milieu rural ou celui d'une banlieue signifiera un changement social et psychologique très rapide pour tous les intéressés et présentera des problèmes considérables d'adaptation. Lorsque la population est cantonnée pendant une certaine période de temps, seule une élaboration minutieuse et une attention spéciale accordée aux problèmes psychologiques éviteront la manifestation de graves tensions sociales entre les individus. De pareils événements ont été constatés dans les études faites au Canada et au Royaume-Uni pendant la dernière guerre.

L'opinion publique a été bouleversée par les expériences subies pendant l'évacuation en 1939 (au R.-U.) Il y avait une élaboration assez minutieuse en ce qui concerne certains problèmes techniques tels que le transport, mais elle était insuffisante à l'égard du personnel. Le déplacement général des évacués lors du cantonnement de 1939 a formé inévitablement toutes les sortes imaginables de ratés au point de vue psychologique et social37. On connaissait mal les sortes de réactions manifestées par les évacués et on comprenait peu les normes de conduite, d'habillement et d'anticipation chez des gens venant de milieux tellement différents. En ce qui concerne les enfants par exemple, ceux qui les avaient accueillis n'ont pas compris et ont été scandalisés par l'augmentation prononcée d'énurésie, par leur incontinence fécale et un comportement agressif.

Ce point pourrait être illustré et détaillé davantage. Bref, on ne peut trop répéter que les infirmières qui organisent l'évacuation en temps de paix ou après une catastrophe de temps de guerre doivent tenir compte non seulement de la santé physique, mais aussi de la santé et du bien-être psychologique et social.

COMMODITÉS DE TRAITEMENT

On peut constater d'après la description de l'état psychologique des survivants à la suite d'une catastrophe que la plupart des gens manifesteront des troubles émotifs et psychologiques plus ou moins graves et que la grande partie de ces troubles seront transitoires. L'expérience a démontré qu'une proportion élevée de ceux qui éprouvent des troubles assez graves se rétabliront s'ils sont soignés rapidement près des lieux de la catastrophe14. Les principaux soins exigés sont un court repos, l'occasion de raconter son expérience et la reprise d'une activité concrète. Il ne faut pas utiliser trop de sédatifs, mais il faut les éviter autant que possible. Un surcroît d'activité, de loquacité et d'agitation est normal, mais il faut laisser disparaître ces symptômes avec le temps. Les prévisions et les attitudes de tout le personnel médical à ce stade seront de toute première importance, car elles pourront empêcher les troubles de persister. On ne croit pas que l'indice de la psychose augmentera, mais les personnes plus gravement atteintes devront être transportées pour obtenir des soins psychiatriques, car elles démoralisent les autres et pourraient réagir à un maniement psychiatrique plus actif.

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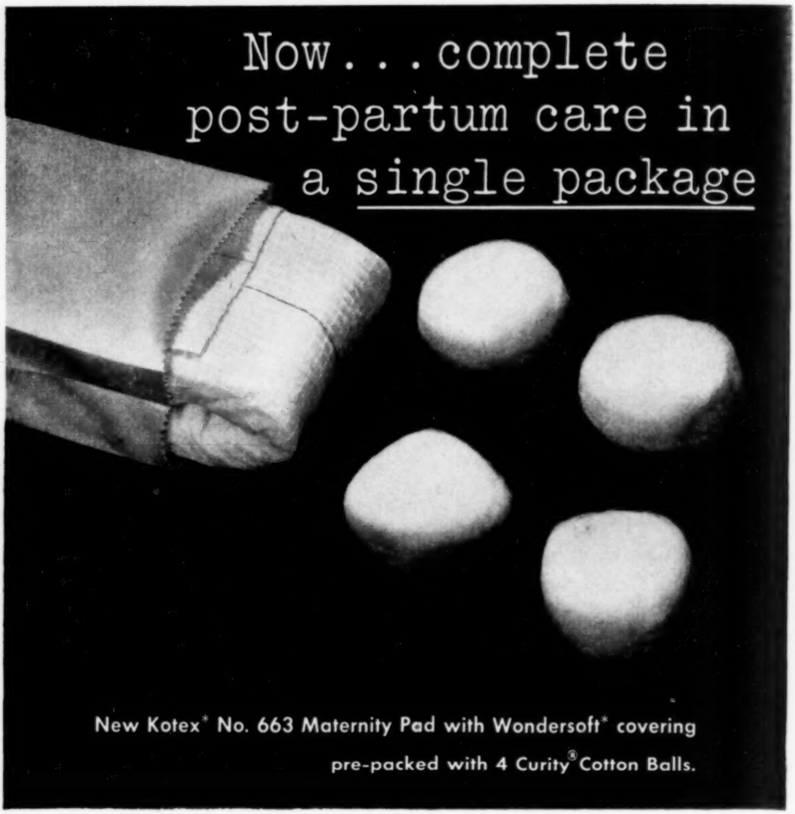

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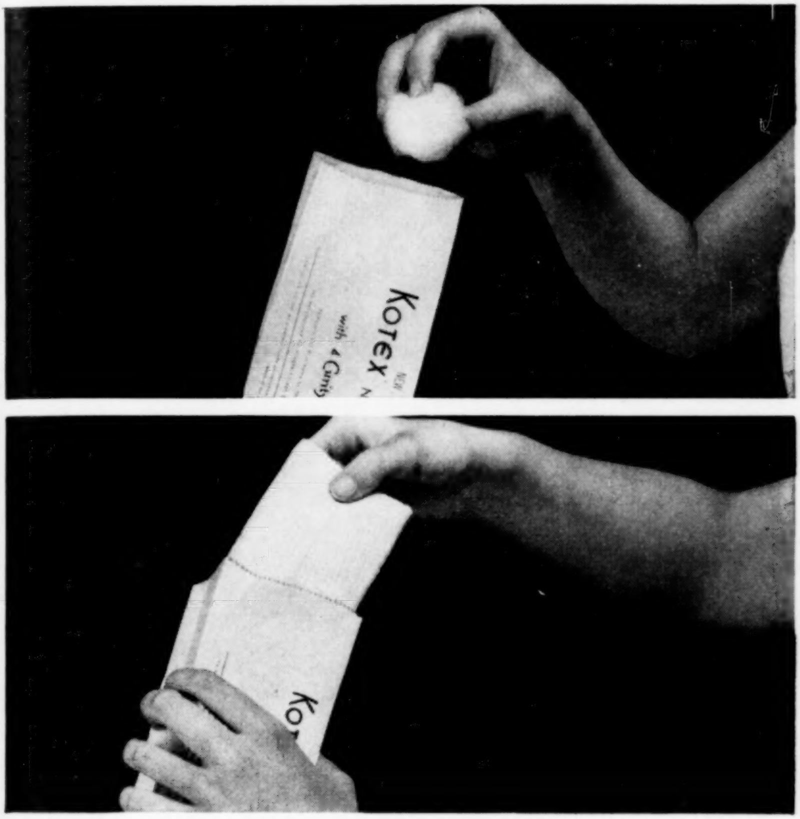

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mentionner brièvement les réactions des enfants. On a souvent remarqué que le fait d'être séparé des parents, le comportement et les réactions de ces derniers constituent des facteurs de toute première importance qui déterminent les réactions des enfants en face de la catastrophe. Les aspects les plus graves de la guerre pour les enfants du Royaume-Uni au point de vue psychologique n'ont pas été d'avoir subi des bombardements, d'avoir vu des dégâts et des blessures, mais ce fut les problèmes posés par l'évacuation, le fait de quitter un milieu familier et d'être séparés de leurs parents. Les enfants, semble-t-il, ne ressentent pas les dangers directement, mais certains adultes sur lesquels ils comptent servent d'intermédiaires. Ce rôle important des parents et de la famille a encore été noté dans une étude effectuée récemment aux Etats-Unis[2]. On a laissé entendre qu'on peut trouver des réactions différentes selon l'âge des enfants. Par exemple, les enfants d'âge préscolaire qui ont de deux à cinq ans souffraient beaucoup plus que ceux qui ont moins de 2 ans[5], tandis que les enfants de 5 à 7 ans seraient particulièrement atteints. Pendant l'évacuation et les bombardements prolongés en Angleterre, l'énurésie, l'incontinence fécale et le comportement agressif ont été des particularités importantes tandis que les problèmes posés par la séparation des lieux familiers ont constitué les facteurs importants [4 13 32 35 36 37].

RÉSUMÉ ET CONCLUSIONS

Qu'est-ce que l'infirmière doit faire?

Les sections précédentes ont décrit les conséquences psychologiques et sociales de la catastrophe et les facteurs qui influent sur la gravité et le persistance des réactions défavorables.

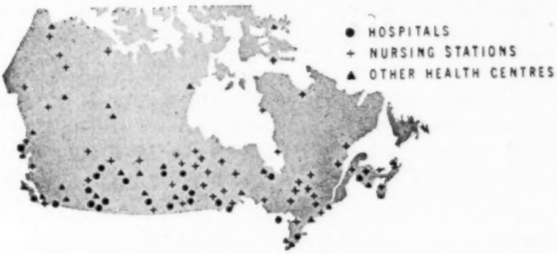
Toutes les descriptions et recommandations qui précèdent ou qui suivent en ce qui concerne le maniement, portent sur la prévention et le traitement des troubles graves tels que la *panique*. La *panique n'est pas une entité*, une maladie quelconque qui requiert un certain traitement déterminé ou qui peut être prévenue par une seule immunisation déterminée. Le mot "panique" se rapporte plutôt à une situation psychologique ou sociale dont une des caractéristiques est un comportement irraisonné, craintif et impulsif. La panique est conditionnée par *tous* les facteurs mentionnés dans le présent article et constitue le dernier stade d'un processus de décompensation psychologique et social à la suite d'une tension. La caractéristique de ce processus et de la décompensation est l'existence de sentiments de crainte et d'anxiété qui augmentent rapidement, lorsqu'un individu ou un groupe se sentent impuissants ou emprisonnés. Dans le même processus, on trouve d'abord les signes et les symptômes tels que les craintes prononcées ou irraisonnées, la formation de rumeurs, l'hostilité, les communications déficientes et les actions secondaires, impulsives et irraisonnées dont nous sommes tous capables. La tâche consiste à apprendre à prévenir et à réprimer ces troubles secondaires chez nous-mêmes et chez les autres, à prévoir et à éviter les circonstances qui les favorisent et à arrêter leur accumulation et leur persistance par des mesures adoptées immédiatement.

Au risque de nous répéter, disons que l'infirmière occupe un poste de commande au cours d'une calamité, particulièrement au cours des premières phases qui ont été décrites, alors qu'il y aura peu de médecins ou qu'ils manqueront tous à l'appel. L'infirmière devra assumer la plus lourde part des soins de prévention primaires, au cours de ces premières phases, et ce qu'elle dira ou fera aura réellement une importance capitale. Pour souligner les points qui ont été exposés dans le corps de la présente thèse, voici quelques suggestions que l'on pourrait mettre de l'avant:

Prévention:

1. Une infirmière doit faire partie de son organisme local de secours. Selon les dimensions de la localité, il faut y parvenir directement ou s'assurer que la société d'infirmières locales possède une commission qui étudie le problème. Les membres devront faire partie de l'organisme de secours, ils feront rapport, décriront le progrès accompli et diront aux infirmières ce qu'elles doivent se préparer à faire. Les avis professionnels de l'infirmière sont indispensables dans l'élaboration de la catastrophe à tous les niveaux et l'élaboration locale ne doit

NURSING WITH INDIAN AND NORTHERN HEALTH SERVICES



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(4) Regional Superintendent, 522 Dominion Public Building, Winnipeg 1, Manitoba.
(5) Zone Supervisor of Nursing, Box 292, North Bay, Ontario.
(6) Zone Supervisor of Nursing, P.O. Box 3427, St. Roch Branch, Quebec, Que.
(7) Moose Factory Indian Hospital, Moose Factory, Ontario.

or

Chief, Personnel Division, Department of National Health and Welfare, Ottawa, Ontario.

pas se passer de se participation. L'organisme de secours en général souffrira si on ne procède pas ainsi et lorsque le temps viendra, l'infirmière pourra constater que l'organisation n'a pas fourni ce dont elle avait besoin, local, matériel, commodités, organisation et personnel, ou lui a confié des fonctions ou un travail mal défini à exécuter.

2. L'infirmière doit savoir personnellement ce qu'elle doit faire en qualité de citoyen particulier et à titre d'infirmière. Que fera-t-elle au sujet de sa famille? Où se rendra-t-elle et que fera-t-elle comme infirmière? Elle doit connaître à fond son rôle dans le plan général et local de secours. Ses plans personnels ne doivent pas être trop précis, de sorte qu'elle ne sera pas désemparée si les événements ne se déroulent pas tels qu'elle les a prévus. Elle doit certainement dresser des plans bien définis, car si la situation est à peu près comme elle l'a prévu, elle pourra se mettre à l'oeuvre immédiatement, mais elle doit également *dresser des plans pour modifier* les siens, être disposée à être souple et à s'adapter à des circonstances variables.
3. *Il est indispensable de bien connaître les possibilités médicales des circonstances critiques et des catastrophes.* Cela signifie non seulement être renseigné sur les aspects physiques de la lésion ou de l'irradiation, mais aussi sur leurs conséquences sociales et psychologiques. L'infirmière doit savoir *à quel point elle peut compter sur elle-même et sur les personnes qu'elle soignera.* On peut beaucoup apprendre de l'état psychologique des personnes qui ont été les victimes de graves accidents ou qui viennent de traverser une situation critique. L'infirmière pourra ainsi non seulement se renseigner, mais en renseigner d'autres. Les personnes qui sont exposées à une catastrophe se tournent vers l'infirmière pour l'interroger et lui demander du secours parce qu'elle est infirmière. Plus elle connaitra la situation à fond, à défaut d'y avoir été exposée elle-même, plus elle sera efficace lorsqu'elle y fera face et qu'elle aidera aux autres.
4. A plus forte raison, lorsque l'infirmière ne se trouve pas dans une agglomération urbaine, elle doit commencer à dresser des plans. Elle devra s'occuper des problèmes des évacués ou elle fera partie d'un groupe qui cherchera à porter secours à une région éprouvée. L'élaboration actuelle appuie davantage sur l'importance de l'organisation médicale dans les localités situées à la périphérie.
5. Les écoles de médecine et quelques écoles hospitalières approuvées d'infirmières négligent la formation aux situations critiques et le maniement médical des calamités civiles dans leur programme d'études sous-diplômées. On recommande d'intercaler des causeries et des séminaires sur ces sujets comme partie de l'instruction ordinaire dans le programme entier d'études sous-diplômées que suivent les élèves infirmières.
6. Dans une catastrophe, l'*infirmière peut prévenir un nombre beaucoup plus grand de cas mentaux que les psychiatres peuvent soigner.*

Premiers soins et traitements:

1. Immédiatement après une calamité, l'infirmière doit non seulement se rappeler qu'elle est une personne possédant une famille qui compte probablement des blessés ou des morts, *mais elle doit également remplir* un rôle social. Son rôle est celui d'une infirmière vers laquelle les gens se tournent instinctivement lorsque la tension est trop forte. L'infirmière a, qu'elle le veuille ou non, des possibilités et des responsabilités de direction, et cette direction est de toute première importance, car elle cherche à atténuer les troubles, et à favoriser le rétablissement individuel et social. *Ce que l'infirmière fait, la manière dont elle se comporte, ce qu'elle dit aux autres, ce qu'elle sait et ce qu'elle recommande aura de lourdes conséquences à ce moment-là et aura une grave signification pour les autres.*
2. Il y a des *premiers soins psychologiques* (1), de même qu'il existe des premiers soins physiques. L'infirmière exercera ses fonctions dans ces endroits et à des moments où les premiers soins ont une importance capitale. L'aptitude de l'infirmière à réprimer les réactions émotives des évacués et des survivants dépendra dans une grande mesure de ce qu'elle aura appris et de la façon dont elle comprend les autres. La manière dont elle réprimera les troubles émotifs transitoires qui se présenteront influera grandement sur l'incidence et la persistance des troubles psychiatriques plus graves.
3. L'infirmière doit penser aux *communications.* En qualité d'infirmière qui voit et qui soigne un grand nombre de personnes, elle constitue un chainon essentiel dans la voie hiérarchique au

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cours d'une calamité. Elle doit savoir comment obtenir des renseignements, se prononcer sur leur validité, transmettre ceux qu'elle obtient et elle doit se rendre compte qu'elle est en mesure de propager ou d'étouffer une rumeur en raison de son prestige et de son influence.

4. Elle doit aider à l'*inscription des survivants et des évacués.* Elle peut ne pas avoir le temps de le faire elle-même, mais elle doit s'assurer que la chose est exécutée, que les gens, quelles que soient leurs blessures et quels que soient les sentiments et l'irritation qu'ils peuvent susciter en elle, devront avoir l'occasion de s'identifier, de donner des renseignements et de savoir que ces renseignements seront transmis à un centre approprié, de sorte que leurs amis ou leurs parents pourront les retracer.

Nursing Care of Psychiatric Casualties

ANNA C. MCARTHUR, B.A.

WE HAVE BEEN TOLD repeatedly that, in disaster, nurses will of necessity have to assume many of the duties which we think of now as those of the doctor. Thus, in caring for psychiatric casualties it is imperative that the nurse should be familiar with the three phases of individual reaction. If the nurse knows what to expect, her ability to observe and recognize symptoms is unquestionably increased.

What nursing care is implied during the period of impact? We may expect that some individuals will remain "cool and collected." This is the group who will be able to help and carry out instructions. The nurse should organize and direct these people to perform such duties as are within their capabilities. The fact that they are occupied and feel useful has great therapeutic value.

The second group in this phase may appear stunned and bewildered. Every effort should be made to provide reassurance and confidence. One method of reassurance is to answer the physical needs of the individual. Physical comfort such as warm, dry clothes, hot drinks and food gives the patient the assurance that previous planning has been done by national and other organizations and his confidence is restored in some measure. The fact that there is someone on whom he can depend has a certain desired effect. The stunned, bewildered individual cannot think for himself and must be directed as to what he should do and where he should go. This direction must be given clearly and confidently by the nurse. It is well to assume that nothing of a permanent nature has occurred and that this stunned period will be brief.

The third group of individuals manifest inappropriate responses such as states of complete confusion, anxiety, hysteria, screaming and disorderly conduct and may need chemical or physical restraint. The nurse must be prepared for some irrational behavior. She should understand the purpose which such behavior serves in restoring emotional balance and realize that it may be temporary. This group must be watched closely and prevented from harming themselves and others.

Let us now consider the second phase of reaction — the period of recoil. It is during this period that the majority of survivors are assessing what has happened to them and are seeking shelter. Many individuals begin to show overt emotional expression of what has occurred. They may cry and laugh alternately and there is a need to express themselves verbally. It is a mistaken idea to keep these people quiet. The nurse should call upon auxiliary workers, not necessarily skilled nor specially trained, but people who will listen. They should be instructed to listen quietly and not act as psychotherapists. Many individuals will display anger. This should be expected and accepted.

In the post-traumatic period, it is obvious that those who cannot fend for themselves must be cared for. The

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Miss McArthur is educational assistant at Sunnybrook Hospital, Toronto.

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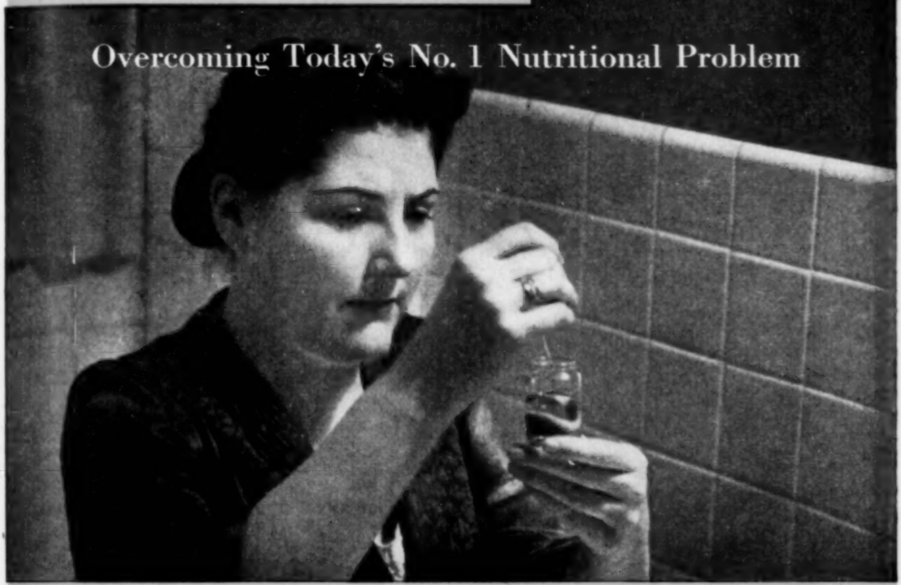

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reactions shown in this period are closer to those which we see each day in our hospital psychiatric wards — depression, marked anxiety states, psychotic episodes and so on. These people must be carefully assessed and, if necessary, sent to a more remote psychiatric centre. Until this is possible it may be necessary to seclude or restrain severely disturbed patients. We cannot allow these acutely disturbed individuals to produce further anxiety in other already distressed refugees. If sedatives are given, these should be clearly and accurately charted on the patient's tag, stating the name, the time and the amount administered. If physical restraints are used, great care must be exercised that these do not interfere with circulation, abrade the skin, or harm the patient in any way.

In order to carry out the nursing care just outlined, it is of prime importance that the nurse should understand her civil defence organization. She must be familiar with the lines of communication as planned — what to do, where to go, the facilities at hand and the help to expect from mutual aid areas. How can she reassure and instil confidence if she has no confidence in herself? She must be familiar with the medical possibilities of emergencies and of atomic attack — with the physical aspects of trauma and radiation and the psychological and social consequences involved. The nurse who works in any hospital today has every opportunity to observe the reaction of patients who have had a serious accident and have been through an emergency. This familiarity with such situations helps greatly when disaster strikes.

The nurse, like the doctor, has a social role to fill. What the nurse says, how she behaves and her ability as a leader carries great weight. Her ability as a leader can come only from her own self-assurance and this self-assurance can come only from how much she has learned previously about providing adequate care for casualties.

Psychiatric nursing is really a science of knowing human nature. At all times the nurse needs a large measure of tolerance and understanding. This does not mean that the nurse is deprived of all authority and firmness.

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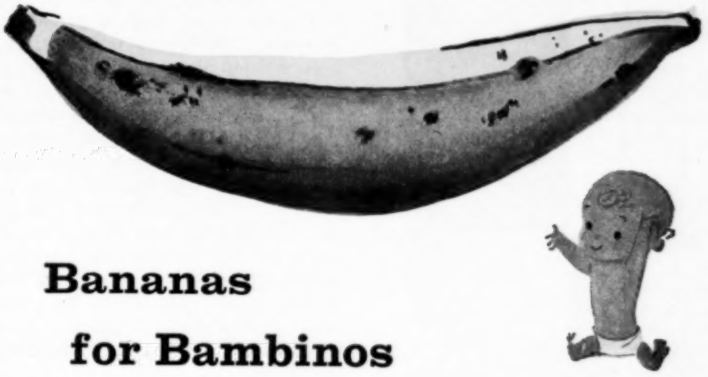
In time of disaster these qualities are absolutely essential to maintain group morale and efficiency. The doctor must continually assess cases. The nurse must be prepared to assist, indeed she may have to do this herself. In the Mental Health Services Revised Section of the Civil Defence Health Services Manual, psychiatric teams are proposed. The team consists of a psychiatrist, psychologist and psychiatrically trained nurse. The team will be responsible for the mental health training of the personnel of the welfare centres. This clearly indicates how much is dependent on the nurse for her observation and ability to help the psychiatrist in the constant sorting of cases.

The nurse must realize that the good handling of transitory disturbances may well prevent more severe psychiatric disorders. She must be ready to carry out this "good handling." It cannot be stressed too strongly that it is important to assess casualties carefully and to treat as many as possible in the proximity of the disaster. Dr. T. A. Ross in his book "Lectures On War Neuroses" quotes the psychiatrist Mira, who in speaking of air raids, said this "Do not provide many psychiatric beds, the more you provide, the more occupants will come to them." It is true that if a haven is provided for those having symptoms, the number of those requiring it will be increased.

In the same line of thought, in an article which appeared in *The Canadian Nurse*, October, 1951, entitled, "Psychological Aspects of Mass Disaster", Dr. T. E. Dancey recommends that "Psychiatric casualties should be retained at a treatment centre as close to the location where the breakdown occurred as relative safety permits."

What a great responsibility is placed upon the doctor in his careful assessment of casualties so that long-term mental illnesses may be prevented! And what a great responsibility is placed upon the nurse for her powers of observation and accurate reporting of individual reactions so that the doctor may make these careful assessments!

When it is imperative to send psychiatric casualties to remote centres for prolonged care, the nursing care



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will, as much as possible, follow the nursing care that is familiar to those who care for the mentally ill in our present day mental hospitals. We should like to think that the traditional custodial care of the past has been superseded by the special therapeutic skills as used in some of our better institutions. Unfortunately, there are still too many hospitals where shortage of staff, overcrowding, lack of equipment, poor food and untrained help preclude this type of care.

The psychiatric nurse of today is an important and valuable member of the psychiatric team where all members work together to plan the care of the patient. Good psychiatric nursing consists of planning the patient's day, talking with patients, taking part in ward activities such as group discussions, games, dances and occupational therapy; caring for the physical needs of the disturbed patient — bathing, feeding and all the other components of general nursing care. It includes observation and accurate recording, assisting with the special therapies such as electroshock, hydrotherapy and insulin therapy. It also has a preventive aspect — the ability to recognize symptoms so that the patient may be given the care he needs before disturbed or assaultive behavior occurs. The psychiatric nurse today has to interpret what she sees and use this knowledge in therapeutic measures for the patient. To perform these functions with skill, the nurse needs special preparation.

If we hope and plan to have these psychiatrically trained nurses in time of disaster, we must produce them in time of peace. Countless articles have been written regarding this situation. Recommendations have poured forth in abundance. The mental health organizations, both national and provincial, are more than aware of the desperate lack. When we realize that 50% of our hospital beds are occupied by the mentally ill, we are frightened by these alarming figures. In the November 1954 issue of *The Canadian Nurse*, Miss H. Evelyn Mallory enumerated some excellent recommendations in a report "The Preparation of Nursing Personnel for the Care of the Mentally Ill."

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Before summarizing the nursing care of psychiatric casualties we might consider briefly the question, "What of the nurse and her own reactions?" In spite of the many articles that have been written about the role of the nurse in civil defence, presenting her always as calm and resourceful, we cannot lose sight of the fact that the nurse is a person and as a person is not immune to emotional reactions. There is for her, as for others, the very real danger of physical injury or death. The nurse fears for her family and friends just as other people do. A certain amount of fear is to be expected as a normal part of individual reaction. A great part of all fear is, of course, dread of the unknown.

Civil defence education and training are designed to raise the individual and group tolerance of stress and to limit the number and severity of disabling emotional reactions. Therefore, the most sustaining single factor in time of stress is the relation of the nurse to her civil defence team. The skill which the nurse acquires through peace time drill and practice enables her to function automatically during her own phases of reaction. It helps her to function as an efficient member of her group. It has been recommended that the doctor's first job is to join his local civil defence organization. This recommendation is equally applicable to the nurse.

No special reference has been made regarding the care of emotionally disturbed children and the old age group. Federal policy in regard to nuclear warfare has a suggested plan of preattack evacuation for these groups.

In summary, therefore, join your civil defence nursing group. Study and become thoroughly familiar with the three phases of individual reaction. Remember that in the period of impact, it is well to use the abilities of those who can be organized and directed. Give special attention in the way of physical comfort to the stunned and bewildered. Get them into groups, reassure them that this period of impact is brief, show them by your own confidence and efficiency that there is someone on whom they may depend. Observe closely and care for the group of individuals who show more marked disturbances. Assure them that these reactions are transitory. If restraint is necessary, use it with caution.

Know what to expect in the period of recoil. Allow survivors to talk freely. Channel displays of anger at the enemy instead of at the municipal or national organizations.

In the post-traumatic period help the psychiatrist in his assessment of cases with accurate reports and intelligent observation. In caring for patients who have been evacuated to long-term treatment centres, carry out the best psychiatric nursing possible.

Be mindful of the fact, that the nurse has a social role to fill. Her behavior in time of stress is an important part of her nursing care. Remember that the nurse is a person too — she must know and understand her own feelings in order to understand and help others.

Ontario

The following is the list of changes in staff of the Ontario Public Health Services:

Appointments — *Frances Lummiss* (St. Michael's Hosp., Toronto, Univ. of Toronto) to Halton Co. Health Unit. *Phyllis (Erskine) Galpin,* (Victoria Hosp. London, Univ. of West. Ont.) to Lambton H. U. *Alice Duff* (St. Catharines Gen. Hosp., U. of T.), *Jessie Lower* (Niagara Falls Memorial Hosp., U. of T.) *Mary Ririe* (Presbyterian Hosp., Pittsburg, U. of T.) and *Reta Sutcliffe* (Hosp. for Sick Children, Toronto, McGill Univ.) formerly with Scarborough Township Board of Health, to North York Township B. H. *Edythe (Turner) Halpenny,* (Ont. Hosp., Brockville, U. of T.) and *Jean (Arnott) Chyc,* (St. Jos. Hosp., Peterborough, U. of T.) to Scarborough Township B. H. *Antje van Egmond* (Sick Children's Hosp., Rotterdam, Amsterdam School of Social Work) to Toronto Dept. of P. H. *Mary Dickson* (Health Visitor's Cert., Cert. of Queen's Institute of District Nursing) to Welland and District H. U.

Resignations — *Marguerite (Ellsworth) Burns,* and *Henny Moller* from North York Township B. H. *Esther (MacDonald) Mutch* from Port Arthur and District H. U. *Rena (Reynolds) Harris, Shirley (Gaffney) Marks,* and *Kathleen Nelson* from Stormont, Dundas and Glengarry H. U. *Daisy Munnings* from Wentworth Co. H. U. *Ann (Breen) Bobbett,* and *Lois (Galpin) Percy,* from York Township B. H.

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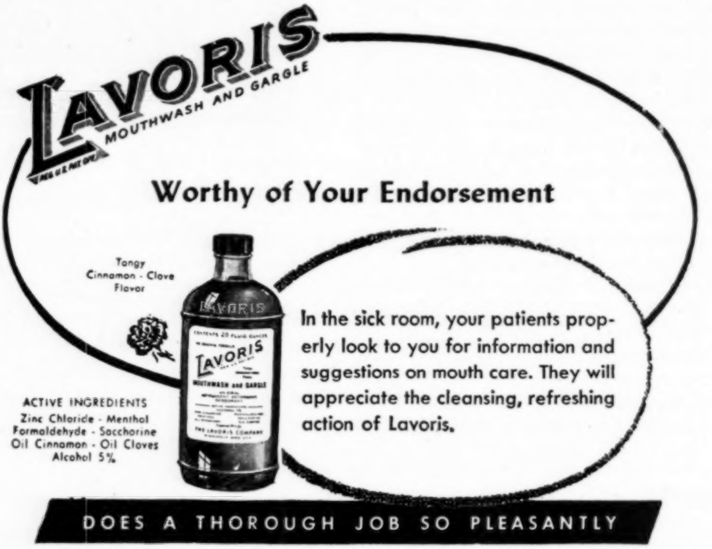
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Nursing Across the Nation

Nursing in the News

Do you remember noticing national news about nursing in your daily or weekly newspapers during the month of February? If so, you were keeping up, day to day, with the deliberations of the Canadian Nurses' Association Executive Committee during its annual meeting.

In addition to the press coverage (some 80 press clippings were received in National Office from across Canada) our President, Trenna Hunter, was interviewed on a local radio station and on television by the CBC. Our 1st Vice-president, Alice Girard, was also interviewed over a French radio station.

The press carried news about a pension plan for nurses, a study of estimating staff requirements, $10,000 for Pilot Project to study Nursing Schools, and 250 Canadian nurses travelling to Rome and the I.C.N.

Action by the Executive

Here are some of the decisions taken by the Executive Committee on the topics which you read about:

Pension Plan — Two different companies presented proposed pension plans for members of the Canadian Nurses' Association. The Executive Committee agreed that, while these plans had merit, they did not entirely meet our needs and further investigation should be carried out. In discussion with agents, one thing was made abundantly clear: that *a participating plan for all members of the Canadian Nurses' Association cannot be developed.*

Since the meeting, other companies have indicated an interest in presenting a plan for consideration.

Estimating Staff Requirements — The Executive discussed a study of principles and methods of estimating staff requirements, and this matter will receive further consideration.

$10,000 for Pilot Project — The April issue of *The Canadian Nurse* carried an article describing the events to date in planning for the Pilot Project for the Evaluation of Schools of Nursing. With $10,000 voted by the CNA and the expected appointment of a director within a short time, the project is gaining momentum every day.

250 Nurses to Rome — By now many of our Canadian nurses will be sailing across the ocean or winging their way to Rome and the I.C.N. 11th Quadrennial Congress. These members will have much to tell upon their return and will be in demand as guest speakers at chapter and district meetings. Bon voyage to all!

50th Anniversary — First News of Convention Plans

The 29th General Meeting of the Canadian Nurses' Association will be held at the Coliseum, Lansdowne, Park, Ottawa, June 23-27, 1958. A Pageant Committee is now planning an historical pageant on nursing, which, it is expected, will introduce the week's activities. This event will be open to the public.

A prominent Canadian will be asked to give the Mary Agnes Snively Memorial Lecture, prior to the installation of officers, on the last evening.

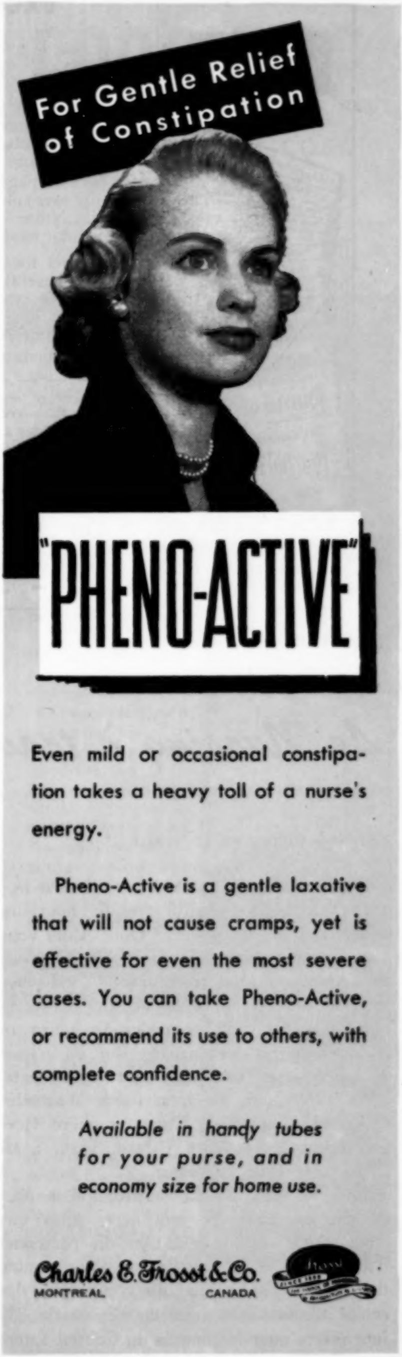
Simultaneous translation, so popular at our last meeting, will again be used for the benefit of our French-speaking members.

The Executive Committee has agreed to an increase in the registration fee since we have experienced a deficit from our last two conventions. It is also expected that to make this meeting a truly spectacular one, increased expenses will be incurred.

Registration fee	$10.00
Student " "	5.00
Daily " "	2.00

Available from National Office

As the Speaker's Kits on Accreditation proved so popular, the major part of its contents plus some additional material has been prepared in folio form for study purposes. This may be obtained on request from National Office.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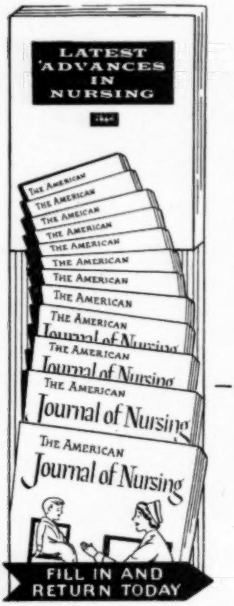

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Le Nursing à travers le pays

Les infirmières et la presse

Vous rappelez-vous avoir vu, dans la lecture de votre journal en février, des nouvelles concernant les infirmières? Oui? Alors vous vous êtes tenues au courant des délibérations de l'Association des Infirmières Canadiennes lors de son assemblée annuelle.

En plus des comptes rendus des journaux (80 découpures de journaux sont parvenues au secrétariat national) notre présidente, Mlle T. Hunter, fut interviewée à la télévision et à la radio. Notre première vice-présidente, Mlle Alice Girard, parla aussi à un poste local de radio.

Les journaux ont fait mention d'un plan de pension pour les infirmières ainsi que d'une étude sur la question du personnel d'infirmières et de l'attribution d'une somme de $10,000 au projet d'accréditation des écoles d'infirmières puis du départ de 250 infirmières pour le congrès du Conseil International des Infirmières à Rome.

Décisions prises par le Conseil Exécutif

Voici quelques-unes des décisions prises par le Conseil Exécutif sur les questions mentionnées dans la presse.

Pension pour les infirmières — Deux compagnies d'assurance ont présenté des plans de pension pour les infirmières. Le Conseil Exécutif reconnut, à l'unanimité, la valeur des plans proposés bien que ne répondant pas à tous nos besoins; une étude plus approfondie devra en être faite. Après délibération avec les représentants de ces compagnies, une chose fut clairement établie: que l'on ne peut songer à l'établissement d'un plan de participation pour tous les membres de L'Association des Infirmières Canadiennes. Depuis cette réunion, d'autres compagnies ont manifesté leur intérêt en nous présentant d'autres plans.

Comment estimer le personnel — Le Conseil Exécutif a discuté des principes et des méthodes permettant d'estimer le personnel d'infirmières requis. Cette question demeure à l'étude.

$10,000 attribué au projet d'accréditation des écoles d'infirmières. Dans le numéro d'avril de *l'Infirmière Canadienne,* paraît un article donnant un compte rendu à jour des événements se rapportant à ce projet et à l'étude préliminaire au sujet de l'évaluation des écoles d'infirmières. La somme de $10,000 votée par l'A.I.C. permettra de nommer bientôt une directrice de cette organisation. Le mouvement s'affirme de jour en jour.

250 infirmières à Rome

Déjà plusieurs de nos infirmières se dirigent vers Rome par la voie des airs ou par l'océan; elles assisteront au Congrès International des Infirmières. Ces congressistes auront beaucoup de choses intéressantes à raconter à leur retour et seront en grande demande par les associations de districts et les chapitres, à titre de conférencières. A toutes nous souhaitons un bon voyage!

50ième anniversaire
Nouvelles préliminaires de l'organisation du congrès général

La 29ième assemblée générale de l'Association des Infirmières Canadiennes aura lieu au Colisée du Parc Lansdowne, à Ottawa, du 23 au 27 juin, 1958. Un comité spécial est actuellement à tracer les plans d'un grand spectale historique qui sera donné, nous espérons, au début du congrès. Le public sera invité à ce spectacle.

Un Canadien renommé sera invité à donner la conférence en mémoire de Mary Agnes Snively, avant l'installation des dignitaires, le dernier soir du congrès.

La traduction simultanée, si populaire lors du dernier congrès, se fera de nouveau pour la plus grande satisfaction des membres de langue française.

Le Comité Exécutif a approuvé l'augmentation du droit d'inscription au congrès; aux deux derniers congrès nous avions éprouvé un déficit. Il va sans dire que pour faire de ce congrès quelque chose de vraiment spectaculaire et mémorable, les dépenses en seront augmentées.

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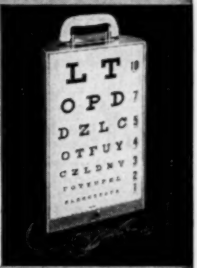

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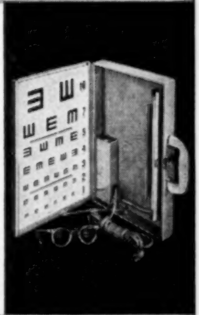

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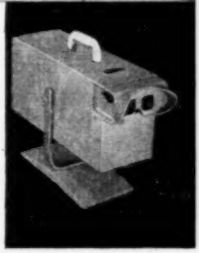

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In Memoriam

Hazel Mae (White) Bayne, who graduated in 1927 from Western Kings Memorial Hospital, Berwick, N.S. died there suddenly on January 26, 1957, following a cerebral accident.

* * *

Janet Carruthers, who graduated from St. Paul's Hospital, Saskatoon, in 1929 and who was resident nurse at Cecelia Jeffrey Indian Residential School, Kenora, Ont., for over 20 years died at Winnipeg on February 20, 1957. Well known for her numerous short stories, Miss Carruthers wrote of her work among the Indians in a successful book "The Forest is my Kingdom."

* * *

Tillie Chambers, who graduated from St. Boniface Hospital in 1919, died at Winnipeg on March 10, 1957. All of Miss Chambers professional work had been carried on in Winnipeg.

* * *

Florence Fraser, who graduated from Victoria General Hospital, Halifax, in 1916 died suddenly in Amherst, N.S. following a few days of illness. Miss Fraser was supervisor of the operating room at the Victoria General at the time of the Halifax explosion in 1917. For the past many years she had been superintendent of the Public Health Clinic at Dalhousie University, Halifax. An active member of the Halifax Branch of the Registered Nurses' Association of Nova Scotia, Miss Fraser had served on the provincial executive committee in many capacities.

* * *

Germaine Gagnon, infirmière-diplômée de l'Hôpital Général de la Miséricorde, Montréal, en 1930, est décédée le 29 novembre 1956. Mlle Gagnon s'est dévouée toute sa vie au chevet des malades en service privé.

* * *

Marthe Giroux, infirmière-diplômée de l'Institut Albert Prévost, Montréal, promotion 1929, est décédée le 23 février, 1957

après une longue maladie. Mlle Giroux se dévoua plusieurs années au nursing psychiatrique. En 1939, elle obtenait son diplôme d'infirmière-hygiéniste à l'Université de Montréal. Elle fut partie du personnel de la Société d'adoption et de protection de l'enfances durant quelques années, puis se remit au service privé des malades. En 1955, elle fut nommée infirmière en charge aux Services Antituberculeux de la Province du Québec, poste qu'elle occupa jusqu'à sa mort.

* * *

Esther (Rice) Haase, who graduated from Victoria General Hospital, Halifax, in 1955, died recently.

* * *

Ada Henniger, a Nova Scotian who received her training in Fall River, Mass., died at Montreal on February 17, 1957, at the age of 80. Miss Henniger joined the C.A.M.C. as a nursing sister in 1917. She was persuaded to take a special course in physiotherapy for work with the wounded. Following her release from the Army in 1920, she worked with the Soldiers' Civil Re-establishment until 1923 when she joined the staff of the Montreal General Hospital. She remained with the Western Division, M.G.H., as chief physiotherapist until her retirement more than a decade ago.

* * *

Isabella Gillespie Meikle, a graduate of Hamilton General Hospital early in the century, died at Winnipeg on February 28, 1957 at the age of 87. Following graduation, Miss Meikle engaged in private nursing in Boston for some 20 years. Returning to Canada in 1922 she was associated with Manitoba hospitals at Amaranth, Eriksdale and Sifton. For the ten years prior to her retirement in 1950 she was on the staff of the United Church hospital at Kitimat, B.C.

* * *

Eugénie Mercier, graduée à l'Hôpital Notre-Dame, Montréal, en 1917, décédée le 5 mars, 1957, après une courte maladie. Mlle Mercier a fait du service privé, hospitalier et à domicile, au début de sa carrière. En 1934, elle fut nommée assistante-directrice de l'école des infirmières de l'Hôpital Notre-Dame, poste qu'elle a occupé jusqu'à octobre, 1956.

* * *

Elizabeth Stewart, aged 79, died at Winnipeg on March 6, 1957. Miss Stewart enlisted with the Imperial nursing service and served in Malta before transferring to the C.A.M.C. She worked in Winnipeg from the time of her discharge in 1920 until she retired in 1939.

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Psychiatric Clinical Instructors (2) to teach affiliating nurses & male staff. Salary: $330-$390 per mo. **Graduate Nurses** (preferably with psychiatric nursing experience.) Salary: $270-$310 per mo. 1,500-bed active treatment hospital conducting an approved school of nursing. 44-hr. wk. Modern residence with board, if desired, $30 per mo. Excellent holiday, sick leave & pension benefits. Apply, stating qualifications & experience to Supt. of Nurses, Provincial Mental Hospital, Ponoka, Alberta.

Clinical Instructor in gynaecology & **Assistant Instructor** in nursing arts for 430-bed hospital, 175-student school of nursing. 40-hr. wk. 4-wk. annual vacation. Cumulative sick time. B.C. registration required. Apply Director of Nursing, Royal Columbian Hospital, New Westminster, B.C.

Nursing Arts Instructor & Operating Room Supervisor for 110 bed-hospital. Apply Superintendent, Charlotte County Hospital, St. Stephen, New Brunswick.

McKellar General Hospital, Fort William, Ontario requires a **Science Instructor.** Duties to commence early in August. Salary schedule: $270-$300 per mo. Additional recognition for experience. Good personnel policies. Apply Director of Nursing.

Instructors (2) for 300-bed accredited General Hospital. School of Nursing (92 students.) 1 class annually. 44-hr. wk. 1 mo. vacation. 8 statutory holidays. Sick leave. Pension plan. Apply Director of Nursing, St. Thomas-Elgin General Hospital, St. Thomas, Ontario.

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Registered Nurses for 16-bed new hospital. Salary: $185, or $195 if 3 yr. experience plus full maintenance. 5½ day wk. 1-mo. vacation. Single room residence. Apply Matron, Municipal Hospital, Manning, Alberta.

Registered General Duty Nurses (2) for 35-bed hospital. Salary: $196 per mo. plus full maintenance, 4 increments of $5.00 per mo. after each 6-mo. 1-mo. vacation with pay. Sick leave & hospitalization benefits. If employed for 1 yr. train fare refunded from any point of Canada. Apply Miss A.A. MacDonald, Matron, Municipal Hospital, Two Hills, Alberta, Telephone 335.

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Registered General Duty Nurses (Operating Room & Obstetrical Depts.) for 100-bed General Hospital located on the shore of Lake Erie. Salary commensurate with experience & postgraduate training. Good personnel policies. Apply Director of Nursing, General Hospital, Port Colborne, Ont.

Registered General Duty Nurses for modern 300-bed accredited hospital. Excellent personnel policies. Rotating shifts. For further information apply Director of Nursing, St. Thomas-Elgin General Hospital, St. Thomas, Ontario.

Registered General Duty Nurses for 200-bed General Hospital. Salary $235 per mo., with annual increase. 5½ day wk. Good personnel policies. Apply Director of Nursing, General Hospital, Sault Ste. Marie, Ontario

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Registered Nurse (2-yr. experience preferred) for 22-bed Private Hospital. Salary range: $301-$334. Full maintenance in ultra modern hotel, $65 per mo. 42-hr. wk. Excellent benefit plans & personnel policies. Apply stating experience, age etc. to Employment Supervisor, LongLac Pulp & Paper Co. Ltd., Terrace Bay, Ontario.

Registered General Duty Nurses for County Hospital in Huntingdon, 45 mi. from center of Montreal. Excellent bus service. Pleasant working conditions. Nurses' home attached to hospital. Attractive community social life. 2 theatres, bowling, curling & dancing. 8 mi. from summer resort on Lake St. Francis & 12 mi. from U.S. border. Gross salary: $200 per mo. Three $5.00 increases at 6-mo. intervals to maximum $215. 44-hr. wk., 8-hr. duty, rotating shifts. Full maintenance available at $35 per mo. 2-wk. sick leave. Blue Cross paid. 1 mo. annual vacation, all statutory holidays. Apply Mrs. M. G. Curran, R.N., County Hospital, Huntingdon, Que.

Registered Nurses for modern 60-bed General Hospital situated 40 mi. south of Montreal. Salary: $200 per mo., additional monthly bonus for permanent evening & night shifts 44-hr. wk., 8-hr. duty. Many attractive benefits provided. Board & accommodation available at minimum cost in completely new motel-style nurses' residence. Apply Supt., Barrie Memorial Hospital, Ormstown, Que.

Registered Nurses for an accredited 82-bed hospital. Salary: $225-$245 per mo. 41-hr. wk. no split shifts. 30-day vacation with pay after 1 yr. of service plus statutory holidays. Living accommodation in nurses' residence & laundry of uniforms provided for $8.00 to $12 per mo. Apply Superintendent of Nurses, Union Hospital, Canora, Sask.

Registered or Graduate General Duty Nurses. Salary: $230 gross per mo. with 6 increments of $5.00 each. Other conditions in accordance with the S.R.N.A. Phone reverse or write to Superintendent of Nurses, Union Hospital, Hafford, Saskatchewan.

Registered Nurses (2) for modern 8-bed hospital. Salary: $240 per mo. with $5.00 increments after 6-mo. service up to $250 per mo. Full maintenance provided for $30 per mo. Apply to Secretary-Treasurer, Union Hospital, Hodgeville, Saskatchewan.

Registered Nurses (General Duty) for 250-bed General Hospital. For further information apply to Director of Nursing, Union Hospital, Moose Jaw, Saskatchewan.

Registered Nurses (Male & Female). Starting salary: $300 up, plus $20 p.m. shifts. 40-hr. wk. Paid vacation, 10-days sick leave. Social Security, hospital group ins. Apply Mr. Glenn A. Dickau, R.N., Administrator, Memorial Hospital, Corning, California.

Attention Registered Nurses — Apply Now! Staff positions available starting June '57 for 400-bed country hospital located 2 hr. drive from either San Francisco or mountain resort areas. Starting salary: $304 with shift differential of $10. Specialty service differential also. Rooms available in nurses' home for $15 per mo. Laundry & meals available for a reasonable sum. 40-hr. wk. 3-wk. vacation at end of 1 yr. 11 holidays yearly & compensatory sick time. Apply Director of Nurses, Stanislaus County Hospital, 830 Scenic Drive, Modesto, California.

Registered General Duty Nurses for 118-bed General Hospital along the shores of Lake Michigan, 25 mi. from Chicago. Base salary: $300. Additional differential of $30 for evenings & $20 for nights. 5 day wk. Good personnel policies. Apply Highland Park Hospital Foundation, 718 Glenview Ave., Highland Park, Ill.

Registered Nurses, Operating Room Nurses, General Staff Nurses (Immediately) for 335-bed General Hospital. 40-hr., 5-day wk. For further information apply Director of Nursing Service, St. Mary's Hospital, 6420 Clayton Road, St. Louis 17, Missouri.

Registered Nurses for 398-bed J.C.A.H. non-sectarian research & teaching hospital with N.L.N. fully accredited school of nursing. Liberal personnel policies include tuition aid for study at Western Reserve University. Housing available at reasonable rates. Apply Director of Nursing Service, Mount Sinai Hospital,, 1800 East 105th St., Cleveland 6, Ohio.

Registered Nurses for staff nursing in new & beautifully equipped 100-bed hospital in the Pacific northwest. Only 6 mi. from the Pacific Ocean. Delightful climate. Beginning salary: $290 for 40-hr. wk., $10 additional for p.m. & night duty. Apply Director of Nurses, County General Hospital, Tilamook, Oregon.

Registered Nurses for 85-bed General Hospital, near border of Mexico. City of 22,000. Splendid climate. 360 days sunshine. Base salary: $275 with interval increases. 2-wk. vacation. 2-wk. sick leave. Retirement. Apply Memorial General Hospital, Las Cruces, New Mexico.

General Duty Nurses (3). Gross salary: $236 less $26 for full maintenance with $10 increment yearly to a maximum of 3 yrs. 44-hr. wk. & pension plan in operation. 21-day vacation after 1 yr. service plus 10 statutory holidays. Apply, giving experience & training to Matron, J. McPhee, Municipal Hospital, Vermilion, Alberta.

General Duty Nurses for the R.W. Large Memorial Hospital of the United Church of Canada, at Bella Bella, B.C. 300-mi. north of Vancouver on the B.C. coast. Salary: $240 per mo. less $40 for room, board & laundry of uniforms. 2 annual increments of $5.00 per mo. Sick time: 1½ days per mo. cumulative. 1 mo. annual vacation plus 10 days in lieu of statutory holidays. Transportation refunded after 1 yr. Apply Matron.

General Duty Nurses. Salary: $240-$280, $10 increment for experience. 40-hr. wk. 1½ days sick leave per mo. cumulative; 10 statutory holidays, 1 mo. vacation. Must be eligible for B.C. registration. Apply Director of Nurses, Royal Inland Hospital, Kamloops, B.C.

General Duty Nurses for 18-bed hospital (situated in beautiful district) for the end of May. Standard salaries. 40-hr. wk. Yearly vacation & statutory holidays. Room & board $30 per mo. Apply Matron, Arrow Lakes Hospital, Nakusp, British Columbia.

General Duty & Operating Room Nurses for 430-bed hospital; 40-hr. wk. Statutory holidays. Salary $240-$273. Credit for past experience & postgraduate training. Annual increments; cumulative sick leave; 28 days annual vacation; B.C. registration required. Apply Director of Nursing, Royal Columbian Hospital, New Westminster, B.C.

General Duty Nurses. Starting salary: $248 per mo., $10 additional for 2 yr. continuous past experience. 4 annual increments of $10 per mo. to B.C. Reg'd. nurses. $20 per mo. for one or moire years university training & $10 per mo. for hospital postgraduate clinical training of not less than 4 mo. 28 days annual vacation after 1 yr. service, 10 statutory holidays per yr. 1½ days sick leave per mo. cumulative. Room rent at nurses' residence $20 per mo. Promotions to senior positions from permanent staff. For details apply Director of Nursing, Trail-Tadanac Hospital, Trail, B.C.

General Duty Nurse: The Blanchard-Fraser Memorial Hospital (71-bed) located in Kentville, Nova Scotia, offers a General Duty Nurse ideal working conditions. 1 mo. annual vacation, excellent personnel policies plus modern living quarters with full maintenance in new nurses' residence. For further information apply to Superintendent of Nurses.

General Duty Nurses, Graduate Nursing Assistants & X-Ray Technician for 40-bed General Hospital. Excellent personnel policies. For further information apply Superintendent, Queens General Hospital, Liverpool, Nova Scotia.

General Duty Nurses for modern 35-bed hospital situated on beautiful South Shore. Good personnel policies. Excellent living quarters. Apply Superintendent, Fishermen's Memorial Hospital, Lunenburg, Nova Scotia.

General Duty Nurses for 55-bed hospital. Salary: $200 per mo. plus maintenance. Travelling expenses refunded on completion of 12-mo. service. Apply Director of Nursing, The Lady Minto Hospital, Chapleau, Ontario.

General Duty Nurses for 86-bed hospital. Situated in the heart of vacation land on Georgian Bay with 7 mi. of sand beach, & is noted in winter for its great skiing on the Blue Mts. Gross salary: $185 for non graduate; $190-$210 for graduates. 44-hr. wk. Statutory holidays. Employee benefits. Living accommodation available. For further information apply Director of Nursing Services, General & Marine Hospital, Collingwood, Ontario.

General Duty Nurses for 50-bed hospital. 5½ day wk. 8-hr. duty. Annual vacation with pay & statutory holidays. Full maintenance in new modern residence. For full particulars apply Superintendent, General Hospital, Kincardine, Ontario.

General Duty Nurses & Certified Nursing Assistants for 70-bed General Hospital. 44-hr. wk. Good personnel policies. Apply Director of Nursing, Ross Memorial Hospital, Lindsay, Ont.

General Duty Nurses for Medical, Surgical, Pediatrics, Obstetrics. Good salary & personnel policies. Apply Director of Nursing, Victoria Hospital, London, Ont.

General Duty Nurses for all departments. Gross salary: $215 per mo. if registered in Ontario, $205 per mo. until registration has been established. $20 per mo. bonus for evening or night duty; annual increment of $10 per mo. for 3 yrs. 44-hr. wk., 8 statutory holidays, 21 days vacation & 14 days leave for illness with pay after 1 yr. of employment. Apply: Director of Nursing, General Hospital, Oshawa, Ont.

General Duty Nurses (Immediately) for Operating Room. Good salary & good personnel policies. Apply Director of Nursing, Ottawa Civic Hospital, Ottawa 3, Ontario.

General Duty Nurses for 466-bed hospital. Salary: $300, California registered; $270 Canadian registered. $15 differential for 3-11 & 11-7 shifts. Apply Cedars of Lebanon Hospital, 4833 Fountain Ave., Los Angeles, California.

General Duty Nurses (2) for permanent duty also summer relief. Modern hospital. Starting salary: $190 and full maintenance. $10 increase after one year. 8-hr. duty, 5½ day wk. Rotating shifts. Attractive nurses' residence. Popular summer resort. Apply The Superintendent, Saugeen Memorial Hospital, Southampton, Ontario.

General Duty Nurses for 163-bed Tuberculosis Sanatorium. Liberal personnel policies. Residence facilities available. Apply Director of Nurses, Sudbury & Algoma Sanatorium, P.O. Box 40, Sudbury, Ontario.

General Duty Nurses (2), Trained Nursing Assistant (1) on or after July 1st, 1957 for modern 23-bed hospital. Nurses' salary: $230 per mo. with 6 increments of $5.00 every 6-mo. 28-day vacation after 1-yr. service. 15 days sick time accumulative to 90 days. Nursing Assistant's salary: $148.50 with 3 increments of $5.00 every 6-mo. Apply stating qualifications to Miss O. M. Purdy, Supt. of Nursing, Union Hospital, Rosthern, Saskatchewan.

General Duty Nurses (Staff positions in all Clinical areas) for 260-bed teaching hospital located half way between Detroit & Chicago. Day duty: $271 per mo. Evening & night duty: $301 per mo. 40-hr. wk. 2-wk. vacation. 2-wk. sick leave. 6½ holidays. Social security & group insurance. Apply Director of Nurses, Borgess Hospital, Kalamazoo, Michigan.

General Duty Nurses for newly opened 100-bed General Hospital located in Victoria, Texas. Pop. 50,000. Good year round climate, many recreational facilities. Starting salary: $275, differential for 3 to 11 & 11 to 7. 40-hr. wk. Liberal personnel policies. Apply to Director of Nursing, Citizens Memorial Hospital, Victoria, Texas.

General Duty Nurses for 50-bed General Hospital with excellent facilities. Complete X-ray, laboratory, physiotherapy, surgery, medical records & dietetic depts. Located in scenic Wyoming near Yellowstone National Park. Salary: $280. Apply stating qualifications, experience, housing desired etc. in first letter to Superintendent of Nurses, W. R. Coe Memorial Hospital, Cody, Wyoming.

General Staff Nurses for 400-bed Medical & Surgical Sanatorium, fully approved student affiliation & post graduate program. Full maintenance. Recreational facilities. Vacation with pay. Sick benefits after 1 yr. Blue Cross coverage. Attractive salary; 40-hr. wk. For further particulars apply Supt. of Nurses, Nova Scotia Sanatorium, Kentville, N.S.

Staff Nurses for 600-bed General & Tuberculosis Hospitals with student programs. In central valley, city of 108,000. State & Junior Colleges afford opportunity for advanced education. Salary $300 with 4 annual increases to $341. Full maintenance $45 per mo. Liberal personnel policies. Apply Assoc. Director of Nursing Service, County General Hospital, Fresno, California.

Staff Nurses (eligible for California Registration) all shifts. Basic salary: Days, $305. Afternoon, $325. Nights, $315, also specialty differentials. 6-mo. increase for 3 yrs. 2-wk. vacation per yr. Sick leave. Complete health coverage & $1,000 life insurance. 40-hr. wk. 8 paid holidays. Temp. housing available. Opportunity for advancement. Apply Director of Nursing, Kaiser Foundation Hospital, Los Angeles, California.

Staff Nurses for 300-bed General Hospital. Attractive personnel policies plus differential for specialties, afternoon & night duty. Opportunities for advanced education. Apply to Director of Nursing Service, Kaiser Foundation Hospital, Oakland 11, California.

General Staff Nurses for fully accredited private teaching hospital, located on Lake Michigan just north of Chicago. Salary range: $320.05-$346. Shift bonus: $26, afternoons; $17, nights. 5-day, 40-hr. wk. Progressive personnel policies. Excellent cafeteria & attractive rooms at reasonable rates. Please indicate type of service preferred. Apply Director of Nursing, Evanston Hospital, 2650 Ridge Avenue, Evanston, Illinois.

Staff & Operating Room Nurses for 225-bed General Hospital, near New York City. Salary: $280 including benefits; $30 bonus for evening, $25 for night, extra for call duty. Apply Director of Nursing, St. John's Riverside Hospital, Yonkers, New York.

Staff Nurses for modern 650-bed Tuberculosis Hospital affiliated with Western Reserve University approved by joint commission on accreditation of hospitals. 40-hr., 5-day wk. Beginning salary: $286 with automatic increases. Advancement for eligible applicants. Full maintenance available at minimum rate, housing for 2 or more nurses. Meets approved minimum employment standards of the State Nurses' Association. Apply Director of Nursing, Sunny Acres Hospital, Cleveland 22, Ohio.

Staff Nurses (Rotating) for General Services. Starting salary: $290. Extended evening, night & operating room: $304 per mo. 900-bed teaching hospital in resort twon near large city. Professional & recreational opportunities. Apply Director, Nursing Service, The University of Texas, Medical Branch, Galveston, Texas.

Graduate Nurses for new 125-bed maternity hospital & operating rooms. Recognition given for postgraduate courses & for experience. Opportunities for advancement. Salaries: **General Duty,** $220-$240 plus meals & laundry. **Staff positions,** $240-$270 plus meals & laundry. Fare will be advanced if necessary. For particulars apply to Director of Nursing, Royal Alexandra Hospital, Edmonton, Alberta.

Graduate Nurses (3) for 64-bed active hospital. Salary: $225 per mo. if registered in Alberta less $30 per mo. for room & board. 4-wk. vacation after 1 yr. 9 statutory holidays. 1½ days sick leave per mo. Living accommodation if desired. Travelling expenses up to $50 will be refunded after 1 yr. of service. Apply Sister Superior, Providence Hospital, High Prairie, Alberta.

Attention! Attention! Vacancies are expected in an active 50-bed General Hospital close to Vancouver, B.C. R.N.A.B.C. personnel policies under revision. Present basic salary: $250 per mo. Accommodation in staff residence available. Apply Miss M.R. Ward, Supt. of Nurses, Langley Memorial Hospital, Murrayville, British Columbia.

Graduate Nurses (3) for 24-bed hospital. Salary: $235 per mo. if B.C. registered; less $40 board, lodging, laundry. 1 mo. vacation after 1 yr. on full pay. 1½ days sick leave per mo. accumulative. Apply, stating experience to Matron, Terrace & District Hospital Terrace, British Columbia.

Staff Nurses for 500-bed General Hospital. 40-hr. wk. Beginning salary: $325 per mo. with advancement to $360 for those eligible for registration in the State of Michigan. Additional differential $1.50 per afternoon or night. Hospital & school of nursing fully approved. Apply Director of Nursing, The Grace Hospital, 4160 John R. St., Detroit 1, Michigan.

Graduate Nurses & Nursing Assistants Immediately for modern 42-bed hospital in northern Ontario. Generous salary schedule & allowances. 40-hr. wk. 1-mo. vacation with pay for Graduate Nurses. Apply Administrator, New Liskeard & District Hospital, New Liskeard, Ontario.

Graduate Nurses for new, very modern 88-bed hospital in a pleasant progressive town Nurses salary: $200 per mo. Annual increase $10 per mo. for 3 yrs. 2-wk. shift rotation bonus for night shifts. 1 hr. drive to Toronto & several resorts. Local swimming pool, bowling alleys, skating, theatres etc. Apply Director of Nurses, Dufferin Area Hospital, Orangeville, Ont.

Graduate Nurses for general staff duty in a tuberculosis hospital for treatment of adult medical patients. For further information, apply to Director of Nursing, Royal Edward Laurentian Hospital, Ste. Agathe des Monts, P.Q.

Graduate Nurses (2) for 14-bed hospital. Gross salary: $230 per mo. with $5.00 increments every 6-mo. for 3 yrs. 3-wk. vacation plus all statutory holidays annually. Daily bus service. Comfortable residence in hospital. Apply Union Hospital Board, Fillmore, Sask.

Graduate Nurses for new $13,000,000 hospital. Salary: $3,700 per yr. Meals & laundry 40-hr. wk. Liberal vacation, holidays & sick leave. Civil Service benefits. Apply Director of Nursing, Martland Medical Center, Newark 7, New Jersey.

Operating Room Nurse, General Duty Registered Nurses for 100-bed General Hospital 25 mi. from Toronto. Modern residence available. Apply Director of Nursing, Peel Memorial Hospital, Brampton, Ontario.

Floor Duty Nurses for modern 50-bed General Hospital. Salary: $235 per mo. gross for registered nurses. Annual increment $60; extra pay for shift work. Apply Superintendent, Leamington District Memorial Hospital, Leamington, Ontario.

Supervisor (qualified.) Good salary. Extra allowance for experience if French speaking 5-day wk., 4-wk. vacation, 18 days sick leave accumulative annually. Car is provided. Half cost of uniform is allowed & half of Blue Cross. Workmen's Compensation. Good working conditions. Apply Sec.-Treas., Porcupine Health Unit, 164 Algonquin Blvd. E., Timmins, Ont.

Public Health Nurse Grade 1. British Columbia Civil Service, Dept. of Health & Welfare Starting Salary $255, $260, $266 per mo., depending on experience, rising to $298. per mo. Promotional opportunities available. Qualifications: Candidate must be eligible for registration in British Columbia & have completed a University degree or Certificate course in Public Health Nursing. (Successful candidates may be required to serve in any part of the Province.) Cars are provided. 5-day wk. in most districts. Uniform allowance. Candidates must be British subjects; preference is given to ex-service women. Application forms obtainable from all Government Agencies, the Civil Service Commission, 544 Michigan St., Victoria, or 411 Dunsmuir St., Vancouver 3, to be completed & returned to the Chairman, Civil Service Commission, Victoria. Further information may be obtained from the Director, Public Health Nursing, Dept. of Health & Welfare, Parliament Bldgs., Victoria, B.C.

Public Health Nurse (Qualified) for Municipal Health Board July 1, 1957. Registered Nurse without course will be accepted & sent on course Fall of '58 if no qualified applicants apply. Salary commensurate with qualifications & experience. 5-day wk. Accumulative sick leave, pension plan, hospital insurance etc. available. Apply Sec., Saint John Board of Health, P.O. Box 93, Saint John, New Brunswick.

Public Health Nurses for generalized program with Peel County Health Unit. Salary range: $3,100-$3,700. Unit is a suburban-rural area adjacent to metropolitan Toronto. Car allowance & pension plan. Blue Cross & P.S.I. available. Apply to Dr. D. G. H. MacDonald, Medical Officer of Health, 44 Nelson St. W., Brampton, Ontario.

Public Health Nurses. Minimum salary: $2,840 with annual increases of $150 per yr. for 4 successive yrs. 38-hr. wk. 3-wk. vacation with pay. All statutory holidays. 2 days per mo. sick leave accumulative to 48 days. Uniforms provided. Apply W. M. Abraham, Sec.-Treas., Kent County Board of Health, 7th St., Chatham, Ontario.

Public Health Nurses (Qualified) for generalized program. Salary: $3,000 to $3,600. Annual increment: $150. 5-day wk. Blue Cross & P.S.I. available. Car provided or car allowance. Apply Dr. Charlotte M. Horner, Director, Northumberland-Durham Health Unit, Cobourg, Ont.

Public Health Nurses for generalized program in rural & semi-urban area adjacent to metropolitan Toronto. Excellent working conditions including pension plan, group ins. & transportation arrangements. Apply Dr. R. M. King. York County Health Unit, Newmarket, Ont.

Public Health Nurses (Qualified) for generalized program in urban area. Starting salary without previous experience: $3,100. Transportation provided. 5-day wk. Pension & hospitalization plans employer shared. Apply Miss Gertrude H. Tucker, Supervisor, Public Health Nursing, Board of Health, City Hall, 50 Centre St., Oshawa. Ontario.

Public Health Nurses (2) for generalized program in city of 43,000. Blue Cross & P.S.I employer shared. Transferrable accumulative sick leave & pension plans. Workmen's Compensation. Group insurance available. Transportation provided or allowance — 10¢ first 2,000 mi., 8¢ per mi. thereafter. 5-day wk. 1 mo. vacation with extra time at Christmas. Salary scale: $3,000 for inexperienced nurses to start with annual increments of $150. All starting salaries dependent on experience. For further information please write supplying details of training & experience to Medical Officer of Health, City Hall Peterborough, Ontario.

Public Health Nurses (Qualified) for generalized program in newly formed Health Unit. Salary scale: $3,000-$4,500. Allowance for experience & second language. 5-day wk. 4-wk. vacation. Transportation provided. Blue Cross, P.S.I. employer shared, accumulative sick leave. Pension plan available after 1 yr. continuous service. For further information please write Dr. J. B. Cook, Medical Officer of Health, Sudbury & District Health Unit, 50 Cedar St., Sudbury, Ontario.

Public Health Nurses (Qualified) for generalized public health nursing service. Salary range effectively July 1, 1957: $3 388-$3,833. Starting salary based on experience. Annual increments. 5-day wk. Vacation. Shared hospitalization. Sick pay & pension plan benefits. Apply Personnel Dept., Room 320, City Hall, Toronto, Ontario.

REGISTERED NURSES

Salary range $325-$360 per month; differential on p.m. shift $1.50, nights $1.00.

Openings in Obstetrical and Medical-Surgical services.

Apply to Personnel Department,

WOMAN'S HOSPITAL
432 HANCOCK AVENUE E.,
DETROIT 1, MICHIGAN

EDUCATIONAL DIRECTOR

1 Class of 20-24 students enrolled per yr. Salary commensurate with qualifications. Board & room available if desired.

For further information apply:

DIRECTOR OF NURSING,
ROYAL INLAND HOSPITAL,
KAMLOOPS, BRITISH COLUMBIA.

DIRECTOR OF NURSING

for

VICTORIA HOSPITAL, RENFREW, ONTARIO

Approximately 100-Beds School of Nursing with 30-40 students

ATTRACTIVE OTTAWA VALLEY TOWN, 60 MILES FROM OTTAWA

SALARY: $400 PER MONTH

3-room Apt. available if Director wishes to live in residence.

Qualifications desired: Degree or postgraduate certification in nursing administration.

Apply giving experience & qualifications to:

CHAIRMAN, PERSONNEL COMMITTEE, VICTORIA HOSPITAL, RENFREW, ONTARIO

Public Health Nurses (qualified.) Salary: $3,100 depending on dist. served, less if in the Timmins area. Annual increment $150 per annum for 4 yrs. Additional allowance for experience & if French-speaking. 5-day wk. 4-wk. vacation, 18 days sick leave annually (cumulative). Car is provided. Half cost of uniform is allowed & half of Blue Cross. Workmen's Compensation. Good working conditions. Apply Sec.-Treas., Porcupine Health Unit, 164 Algonquin Blvd. E., Timmins, Ont.

Public Health Nurses (Qualified) for a generalized program in Etobicoke Township (suburb of Toronto). Minimum salary: $3,200. Starting salary based on experience. Car allowance $670 per annum. 4 wk. vacation after 1 yr. Blue Cross, Pension Plan & P.S.I. benefits. Apply Director of Public Health Nursing, Township of Etobicoke, 4946 Dundas St. W., Toronto 18, Ont.

Superintendent of Nursing (Matron) for 47-bed hospital. Staff: 11 graduate nurses, 5 nurses' aides & an over-all personnel of 35. Modern 2-room suite available in nurses' residence. Salary to be negotiated on basis of qualifications & experience. Please give particulars of professional training, hospital experience with references, & salary expected to Sec.-Manager, Union Hospital, Rosetown, Saskatchewan.

Registered Nurse for Clinic. Salary & conditions in accordance with B.C. Nurses' Association. Apply stating experience & qualifications to Associate Medical Clinic, 575 Quebec St., Prince George, British Columbia.

Registered General Duty Nurses for new 50-bed General Hospital in active B.C. center. Starting salary: $235. 40-hr. wk. 28 days vacation, 10 statutory holidays. Sick leave, full benefits. Travel refund. Private accommodation in new nurses' residence. Offers convivial, harmonious atmosphere. Please state age, qualifications, references. Apply Administrator, G. R. Baker Memorial Hospital, Quesnel, B.C.

General Duty Nurse for 17-bed hospital. Salary: $200 gross. $5.00 per mo. increase after each 6 mo. up to 3 increases. Transportation refunded after 6-mo service. 1 mo. vacation after 1-yr. service. 2-wk. sick leave each yr. paid for if not used. Apply Municipal Hospital, Elnora, Alberta.

General Duty Graduate Nurses (2) June 1st. Salary: $250. Board: $40. 28-day vacation after 1-yr. service. All statutary holidays paid. Graduate complement 5. Apply giving full details to Matron, Slocan Community Hospital, New Denver, British Columbia.

Nurses — eligible for registry — immediate openings for general duty & surgery. Starting salary: $275 per mo. 40-hr. wk. Maintenance furnished if desired. Hospital located 12 mi. south of Portland with educational & cultural advantages; near mountains & seashore. Apply to Director of Nurses, Oregon City Hospital, 515 Tenth St., Oregon City, Oregon.

REGISTERED NURSES

$2,610-$3,360

ACCORDING TO QUALIFICATIONS

CERTIFIED NURSING ASSISTANTS

$2,040-$2,220

SUNNYBROOK HOSPITAL 5-day week WESTMINSTER HOSPITAL

TORONTO LONDON

Application forms, available at your nearest Civil Service Commission Office, National Employment Service & Post Offices, should be forwarded to the

CIVIL SERVICE COMMISSION, 25 ST. CLAIR AVE. E., TORONTO 7, ONTARIO

ENJOY WESTERN CANADA'S CLIMATE AND HOSPITALITY

THE VANCOUVER GENERAL HOSPITAL

requires

GENERAL STAFF NURSES

REGULAR AND VACATION RELIEF POSITIONS.

1500 bed teaching hospital, heart of British Columbia's medical centre

ATTRACTIVE PERSONNEL POLICIES

Salary $249 — $289 per month. 5 day, 40 hour week

(Eligibility for registration in B.C. necessary)

PLEASE APPLY TO PERSONNEL DEPARTMENT, VANCOUVER GENERAL HOSPITAL,
VANCOUVER, B.C.

REGISTERED NURSES

Sequoia Hospital in Redwood City, California, has openings on its staff for registered Nurses. Sequoia is a 218-bed District Hospital which was built in 1950 & to which a new wing was added in 1954. Redwood City, with its population of 42,000 is located 25 miles south of San Francisco. Its slogan, "Climate Best by Government Test," is appropriate. This is a community of beautiful homes & gardens, fine schools & churches, & a hospital in which the residents take great pride.

Salary: To start — $315 per mo. with $10 increase every 6 mo. to a maximum of $355.

$15 differential for 3-11 Shift

$10 differential for 11-7 Shift and O.R. and Delivery Services.

Vacations: After 1 year — 10 days (2 wks.)
After 2 years — 15 days (3 wks.)
After 3 years — 20 days (4 wks.)

Social Security — Group Insurance — Credit Union

For further information, write
PERSONNEL OFFICE
SEQUOIA HOSPITAL, REDWOOD CITY, CALIFORNIA

ASSOCIATE DIRECTOR OF NURSING SERVICE

REQUIRED AUGUST 1, 1957

For new 300-bed General Hospital

Excellent Personnel Policies

For further information please apply

DIRECTOR OF NURSING,
MEMORIAL HOSPITAL, REGENT ST. SOUTH, SUDBURY, ONTARIO

Positions Available in new 300-bed General Hospital

OBSTETRICAL SUPERVISOR (Qualified)

GENERAL STAFF NURSES

(Salary $225 per month)

Perquisites include: 28 days vacation; 8 statutory holidays; sick leave accumulative to 60 days; free laundering of uniforms.

For further information apply:

DIRECTOR OF NURSING,
MEMORIAL HOSPITAL, REGENT ST. S., SUDBURY, ONTARIO

DELIVERY & LABOR FLOOR SUPERVISOR

MOUNT HAMILTON MATERNITY HOSPITAL

HAMILTON, ONTARIO

A large 111-bed Obstetrical unit with approx. 4,500 births per yr. Located within ten min. of center of city.

Residence accommodation provided if requested.

Salary—Begins at approx. $266 per mo.

Increments—$2 per wk. after 12 mo. for 4 succeeding yrs.

Vacation—21 working days per yr.

Holidays—11 paid statutory holidays per yr.

Sick Leave—18 days after 1 yr.

Hospitalization & other benefits.

Apply: Superintendent

MOUNT HAMILTON
MATERNITY HOSPITAL,
HAMILTON, ONTARIO

PROVINCE OF NOVA SCOTIA

DEPARTMENT OF PUBLIC HEALTH

requires

GRADUATE NURSES

Interested in Public Health Nursing.

Training Bursaries available.

Salary in accordance with qualifications & experience.

Additional information may be obtained from:

Director of Public Health Nursing
Department of Public Health,
Provincial Administration Building,
Halifax, Nova Scotia.

Application Forms may be obtained from the:

Nova Scotia Civil Service Commission,
P.O. Box 943, Halifax, Nova Scotia,
or by telephoning 2-7341 — Branch 230.

THE PROVINCE OF MANITOBA

requires

AN ASSISTANT SUPERINTENDENT OF NURSING

for the Hospital for Mental Diseases, Selkirk, Manitoba.

QUALIFICATIONS

Registered Nurse preferably with Mental Nursing Certificate.

DUTIES

To assist the Superintendent of Nursing in the supervision and direction of nursing staff and to assist in the teaching program under the direction of the Instructress of Nursing.

SALARY RANGE

$3,120.00 - $4,020.00 per annum, less $300.00 per annum for full maintenance.

The above position offers full Civil Service benefits, liberal sick leave with pay, four weeks' vacation annually with pay and pension privileges. Apply to:

MANITOBA CIVIL SERVICE COMMISSION
247 Legislative Building,
Winnipeg 1, Manitoba.

THE WINNIPEG GENERAL HOSPITAL

REQUIRES THE FOLLOWING PERSONNEL

1. A Science Instructor.
2. A Public Health Instructor.
3. A Central Supply Room Supervisor.
4. An Operating Room Supervisor.
5. An Operating Room Assistant Supervisor.
6. Medical Surgical Clinical Instructors.
7. General Staff Nurses for Medical, Surgical, Gynecological & Obstetrical Departments.

Applications will be welcomed as our facilities are expanding.

Good Personnel Policies.

Apply to:

DIRECTOR OF NURSING
WINNIPEG GENERAL HOSPITAL
WINNIPEG 3, MANITOBA

TORONTO HOSPITAL

(for Tuberculosis)

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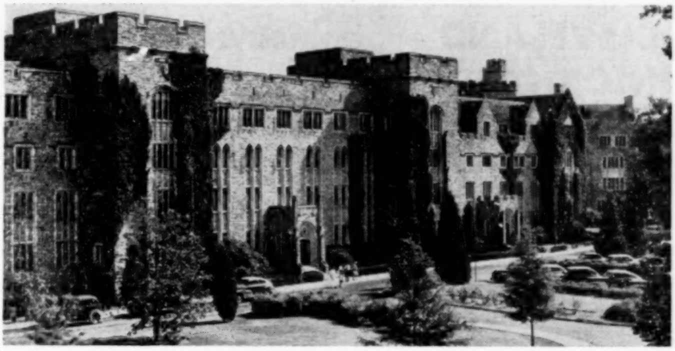

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